



" DESTONA " DECORATIVE WORK



A new method for Decorative——
Panels, Friezes, etc. It does not imitate Tapestry but can take its place. Permanent & reasonable—
in in cost in in

For further particulars apply to 118, Constable Road, IPSWICH.

" Everything for every Craftsman."

UR stock is specially adapted for designers: a large number of our books are in colour and collected from various countries. prints, coloured, are exceedingly useful for ideas; of these we carry a large stock. book on plaster casts (price 1s. 6d.) contains over 50 pages of photographic details of various styles of ornaments. We supply all requisites (books and tools) for Architects, Sculptors, Painters, Furniture Designers, Modellers, in fact—everything for every crafts-Should you be interested, we will compile a list of books, etc., suitable to your requirements, forward it you, and at your convenience send any book, etc., along for your inspection, absolutely without any

obligation on your part. Write for a catalogue stating your profession, and we will mail you a copy free of charge.

JOHN TIRANTI & Co.

BOOKSELLERS & SUPPLIERS
OF
CRAFTSMENS' REQUISITES

Maple St., Tottenham Court Rd. London, W.1

WALL PAPER



By the courtes y of . .

John Line & Sons, Ltd.

HAND-PRINTED WALL PAPERS

Block Printer and his Apprentice at Work

(Frontispiece)

PITMAN'S COMMON COMMODITIES AND INDUSTRIES

WALL PAPER

ITS ORIGIN, DEVELOPMENT AND MANUFACTURE

BY

GEORGE WHITELEY WARD

AUTHOR OF "ART AND THE WALL PAPER" "PLASTIC CEILING DECORATION," ETC.

1921



LONDON
SIR ISAAC PITMAN & SONS, LTD.
PARKER STREET, KINGSWAY, W.C.2
BATH, MELBOURNE, TORONTO, NEW YORK

192/6h

748.4 W 258W 3395 W3X C+1M

COMMON COMMODITIES AND INDUSTRIES SERIES

Each book in crown 8vo, illustrated, 3/- net

By A. IBBETSON ACIDS AND ALKALIS. By G. H. J. COFFEE. By B. B. KEABLE SUGAR. By GEO. MARTINEAU, C.B. ADLAM ELECTRICITY. By R. E. NEALE, OILS. By C. AINSWORTH MITCHELL, B.Sc., Hons. B.A., F.I.C. ALUMINIUM. By Captain WHEAT. By Andrew Millar MORTIMER RUBBER. By C. BEADLE and H. P. STEVENS, M.A., Ph.D., F.I.C. IRON AND STEEL By C. HOOD COPPER. By H. K. PICARD COAL. By FRANCIS H. WILSON, M.I.Min.E. GOLD. By Benjamin White BUTTER AND CHEESE, By C. W. Walker-Tisdale and Jean JONES THE BRITISH CORN TRADE, By A. BARKER TIMBER. By W. BULLOCK COTTON. By R. J. PEAKE SILK. By LUTHER HOOPER LEAD. By J. A. SMYTHE, D.Sc. ENGRAVING. By T. W. Lascelles STONES AND QUARRIES. By J. SILK. By LUTHER HOOPER
WOOL. BY J. A. HUNTER
LINEN. BY ALFRED S. MOORE
TOBAUCO. BY A. E. TANNER
LEATHER. BY K. J. ADCOCK
KNITTED FABRIOS. BY J. CHAMBERLAIN and J. H. QUILIER
CLAYS. BY ALFRED B. SEARLE
PAPER. BY HARRY A. MADDOX
SOAP. BY WILLIAM A. SIMMONS,
DES. (Lord LECCS) Howe, O.B.E., B.Sc., M.I.M.M. EXPLOSIVES. By S. I. Levy, B.A., B.Sc., F.I.C. THE CLOTHING INDUSTRY. B. W. POOLE, M.U.K.A.

FELEGRAPHY, TELEPHONY, AND
WIRELESS. By J. Poole, A.M.I.E.E. B.Sc. (Lond.), F.C.S PERFUMERY. By E. J. PARRY THE ELECTRIC LAMP INDUSTRY. Ву THE MOTOR INDUSTRY. HORACE WYATT, B.A. By G. ARNCLIFFE PERCIVAL GLASS AND GLASS MAKING. COLD STORAGE AND ICE MAKING. PERCIVAL MARSON B : B. H. SPRINGETT GUMS AND RESINS. By E. J. PARRY, B.Sc., F.I.C., F.C.S.
THE BOOT AND STOE INDUSTRY. GLOVES AND THE GLOVE TRADE. By B. E. ELLIS By T. WOODHOUSE and JUTE. By J. G. HARDING P. KILGOUR AS AND GAS MAKING. By W. H. Y. Webber GAS DRUGS IN COMMERCE, By HUMPHREY FURNITURE. By H. E. BINSTEAD COAL TAR. By A. R. WARNES THE FILM INDUSTRY. By DAVIDSON BOUGHEY PETROLEUM. By A. LIDGETT SALT. By A. F. CALVERT ZINC. By T. E. LONES, M.A., LL.D., CYCLE INDUSTRY. By W. GREW SULPHUR. By HAROLD A. AUDEN TEXTILE BLEACHING. By ALEC B. STEVEN. PHOTOGRAPHY. By WM. GAMBLE By . A. LEONARD PLAYER PIANO. By D. MILLER ASBESTOS. WILSON SUMMERS WINE AND THE WINE TRADE.

By Andre L. Simon SILVER. By Benjamin White CARPETS. By Reginald S. Brinton IRONFOUNDING. By B. WHITELEY PAINTS AND VARNISHES. COTTON SPINNING. By A. S. WADE ALCOHOL. By C. SIMMONDS A.S. JENNINGS CORDAGE AND CORDAGE HEMP CONCRETE. AND FIBRES. By T. WOODHOUSE By W. Noble and P. KILGOUR TWELVETREES

PREFACE

It is just as well, in view of several grave volumes upon the subject already in existence, that I should say at the outset that, in the preparation of this little work, I have aimed at no higher mark than to offer the Man who Stops at the Bookstall a general and, I venture to hope also, a readable account of the genesis and development of Wall Papers.

Needless to state, a subject so comprehensive was not to be exhausted in the space of a hundred odd octavo pages. I have, I imagine, left something for other writers still to say about it. If I have succeeded in interesting the individual above referred to in an everyday sort of topic that is yet quite intimately identified with his own domestic comfort and wellbeing, that is quite as far as I ever hoped to go. If I have accomplished so much, I have reached to the utmost boundary of my own endeavour.

So, there only remains to discharge a debt of thanks in several quarters. In the first place, I would tender to the Directorate of the Wall Paper Manufacturers, Ltd., sincere acknowledgments for very kind assistance and facilities afforded to me in the writing of the chapters which follow. In the next, I would like to thank the same firm and that of Messrs. John Line & Sons, Ltd., wall paper makers, for the loan of the many beautiful illustrations which supplement the literary text. And, lastly, my gratitude is due to Mr. Henry G. Dowling, Chief Decorative Adviser at Messrs. Line's, and to Messrs. W. W. Clarke Pitts and G. Fisher Jones, of the artistic staff of the same firm, for much valuable help as the writing went along.

GEORGE WHITELEY WARD.



CONTENTS

CHAP.		PAGE
	PREFACE	v
I.	THE ORIGIN AND EVOLUTION OF WALL-	
	PAPERS	1
II.	THE TAPESTRIES: A LINK IN MURAL DECO-	7
	RATION	1
III.	THE TAPESTRIES (continued)	13
IV.	BEFORE THE WALL "PAPERS" CAME IN .	20
v.	EARLY ENGLISH WALL PAPERS	25
VI.	THE PRODUCTION OF A MODERN WALL	00
	COVERING	33
VII.	THE ARTISTIC SIDE OF WALL PAPER MANU-	
	FACTURE	45
VIII.	ON THE SELECTION OF A WALL PAPER .	54
IX.	ON THE SELECTION OF A WALL PAPER	
	(continued)	63
х.	CEILING DECORATION	68
XI.	STYLES IN WALL PAPER: PRESENT AND TO	
	COME	72
XII.	HOW TO HANG A WALL PAPER	76
XIII.	SOME CONCLUDING OBSERVATIONS	84
XIV.	SCHOOLS OF ART AND THEIR TRADE VALUE .	92



ILLUSTRATIONS

	P	AGE
HAND-PRINTED WALL PAPERS: BLOCK PRINTER	AΤ	
WORK Front	tispi	iece
THE "WOODLANDS" DESIGN		14
A BLACK-AND-GOLD RELIEF WALL PAPER		21
THE "LYCEUM" DESIGN		26
A WALL-PAPER FACTORY: ENGRAVING ROOM .		34
A WALL-PAPER FACTORY: PREPARING THE ROLLERS		36
THE "TURIN" DESIGN		41
"PRINCESS BADOURA" DESIGN		46
TWO CHARMING "LANTERN" FRIEZES		50
THE "FESTIVAL OF LANTERNS" WALL DECORATION		52
"BIRDS, ROSES AND WISTERIA" DESIGN		59
"FUN O' THE FAIR "NURSERY WALL PAPER .		64
THE "GAWKY BIRD": ANOTHER NURSERY DESIGN		66
TABLE OF CALCULATION FOR PAPERING PURPOSES		77
THE "CROWN" WALL DECORATION		79
THE "ARCADY" DESIGN		85
SPECIMENS OF MACHINE-PRINTED WALL PAPER	88	-89
THE NEW "DESTONA" MURAL DECORATION .		95



WALL PAPER

CHAPTER I

THE ORIGIN AND EVOLUTION OF WALL PAPERS

THE original basic idea from which the wall paper of commerce has developed and been evolved was, probably, one of the very first notions to enter the brain of Man in his primitive state.

It was in an epoch so remote that we cannot hazard even an approximate guess at the distance separating it from ours when this deliberate intention to conceal the plain baldness of his cave walls behind some kind of decoration occurred to that queer being, half Troglodyte, half Arboreal, who was the common progenitor of us all.

Worried by a dawning aesthetic sense, and not as yet sufficiently advanced in his development to carve, or paint, or draw, he did the next best thing he could to satisfy this vague new craving that possessed him. He draped the pelts of such animals as fell victims to his bow and spear upon the walls of his cavern, or hut, or wigwam, and stood back to admire the effect. So did the first man invent the first wall hangings.

Undoubtedly, there were many points about the idea to commend it to our hairy forefathers. In the first place his hides "cured" as well, or better, when stretched upon a wall than pegged out on an uneven floor. Secondly, his social importance and his prowess as a hunter could readily thereby be gauged by visitors; and thirdly, in the facility with which he could change the "tone" of his interior by substituting a black or

brown skin for a grey or mottled fur he realized already the truth that underlies the saw about variety being the charm of life.

This notion of a detachable wall covering ruled even more and more popular as man increased in intellectual stature. Yet, as soon as he had learned to weave, skins as mural decorations went permanently out of fashion and Cloth came in.

It is upon record that all the early Israelitish kings and tribal princelets applied such hangings to the rough walls of their palaces and *kasrs*, as did their caste kinsmen the priests to synagogue and praying place. Not once, but over and over again, are these hangings referred to in Holy Writ, and always with the obvious intention of dazzling the mental vision of the reader with the glory and the richness of their tint and texture.

Meanwhile, in another quarter of the globe the same root-form was being exploited in a different way. If you desire to examine at close quarters specimens of some of the earliest mural decorations in existence you have only—that is, presuming you are a Londoner—to step as far as the British Museum. On entering the national "Wonder House," turn sharp round to the left, traverse the Roman gallery with its arid rows of busts of departed Caesars, pass thence into the Assyrian Department and—there you are!

Here you may gaze your archaeological fill upon the most ancient wall coverings of which the world to-day has concrete knowledge. Inasmuch as they are not applied to the surface of the wall at all, but cut deeply into it, the connection of these mural adornments with the tinted, printed wall paper of a modern Mayfair drawing room is not at first glance entirely apparent. Nevertheless, these man-headed bulls and quaintly cut figures of kings and warriors, and horses and chariots, and ranks

upon ranks of expressionless captives, are of the first interest and significance in this connection. For in the days when this old earth of ours was still, comparatively speaking, young and the palace walls of Nineveh and Babylon but newly raised, these carvings that covered them from plinth to coping stone represented in every sense of the term the papier peint as we have it now, and did so very adequately withal.

It was a fortunate circumstance again, for remote posterity, that those ancient Eastern monarchs had a penchant for recording their kingly doings upon their walls. Otherwise we should still, quite probably, have been groping blindly in the dust of the ages for the true story of the world's beginnings. As it is, the narrative of human progress and development has, by the agency of these invaluable wall-pictures, become practically a continuous story from those far-off times down to our own. For successive wielders of the Royal sceptre scrupulously added each his "bit" to what was literally a "tale of bricks"; and one imagines dimly the keen personal pride that every one of those old rulers would take in the minute perpetuation of his own particular fame, expressed in curly-bearded bulls and stiff-limbed lions.

Continuing your tour of observation in line direct you reach the Egyptian Gallery in due course. In antiquity almost co-eval with the handicraftsmen who fashioned forth the Babylonian images, in the matter of aesthetic talent and perception, the mural artists of old Khem were their superiors out and out. And the principal reason for this advancement was undoubtedly the fact that they had discovered a medium far more plastic and ductile, if much less durable, wherewith to get the precise pictorial effect at which they aimed. Instead of that slow business of cutting and carving

in hard stone they *painted* their designs upon the wall faces, artfully mingling oil with warm wax to make a "surface," upon which they wrought in a medium that would to-day be termed Distemper.

It is a far cry, topographically and historically alike, from the handsomely ordered and appointed show rooms of Bond and Berners Streets to the colossal halls of Thebes and Karnac, and the high, rock-hewn tombs of Abou Simbel yonder by the Nile-bank. But those of my readers who have been privileged to visit the latter will bear me out in stating that the life-story of the owners, dead and dust long aeons ago, may yet be traced with perfect ease and clarity through the hosts of queer figures, done in lamp-black and Indian red, and more occasionally Nile-water blue, with which the walls of banquet hall and mausoleum are thickly covered. And, incidentally, the painstaking and persistent way in which the mere mortal has endeavoured to associate himself with the Immortal thereon is a matter which cannot fail to have occurred to every thoughtful traveller who has gazed at them.

Leaving ancient Eygpt and its temple walls and pictured papyri, and journeying in fancy to the westward, we glimpse in due course the roofless fanes and low-tiled dwellings of Pompeii, but newly (as time counts) recovered from beneath its pall of dust and lava ash. And visualizing them we observe that the beautification of wall and balcony and dainty alcove has advanced another stage or two towards our twentieth century standard of perfection.

Most assuredly the old Pompeian artists spared neither time nor pains to obtain exactly the results at which they aimed. They were no untaught geniuses either who were responsible for the *chef d'oeuvres* of mural decoration which have come down to us to indicate

what was the public taste in art at the commencement of the Christian era. No record remains, so far at least as the writer is aware, of the Art Schools of Pompeii and its near neighbour, the still-buried Herculaneum. But Schools of Design there must have been in both these cities, one is quite certain, for the faultless technique, allied to the fine knowledge of line and colouring evidenced in the wondrously beautiful works of art which have been unearthed from the first-named, were never the inherited dower simply of any painter, from Praxiteles to Poynder. "By your works shall ye be known," and so one may say with certainty that these Pompeian brushmen had served their arduous apprenticeship in the local "life" schools.

Innate perfection of form and outline seems invariably also in the case of these Pompeian wall pictures to have been allied to great restraint in treatment. The artist appears instinctively to have chosen, in almost every instance, a low range of tints in preference to the more vivid hues, to spread upon his palette. And that such selection was correct also according to our modern artistic canons is demonstrated by the fact that the subdued "Pompeian red" is one of the favourite, as it is one of the most effective, hues for backgrounds of the best colorists, mural and pictorial, of to-day.

They painted, not for a few years but for all time, moreover, did the limners of those dim old days gone by two thousand years. The pigments they employed were practically everlasting. So fresh, so unfaded, are the tints that start into bright life at every turn of the Italian excavator's pick that one would swear those gay frescoes of nymph and satyr, god and goddess, had been designed but last week.

The durability which has thus defied the flight of centuries of time was achieved in large measure, it is supposed, by an adroit admixture of gum arabic with melted wax and a special kind of varnish-oil, the whole most skilfully applied. The precise ingredients are perhaps worth quoting in an epoch when all the confraternity of brush and mahlstick is in despair at seeing the original hues of contemporary canvases paling and detoriorating rapidly into a uniform and leaden dullness.

CHAPTER II

THE TAPESTRIES-A LINK IN MURAL DECORATION

In mankind's instinctive hankering for decorative effect very many media besides paper have been utilized, all history along, for the adornment of the world's house walls. One of these, perhaps indeed the most important before the advent of the first crude specimens of wall paper, was Tapestry.

Exactly when tapestry first came into service as a wall covering, it is impossible to say. If one is prepared to admit any kind of woven fabric as coming under that denomination, probably either Nineveh or Babylon may legitimately claim to have been the cradle of this form of mural decoration; but we shall never know for certain.

What we are sure about is that long, long before wall papers were so much as dreamed of, cloth of varying texture—silk, lace, or warp and weft of stuff—was known, and widely used for wall hangings. The great temples of Bel and Ashtaroth, as well as the royal palaces of the age-old Mesopotamian Empires, were magnificently furnished forth with gorgeous woven stuffs, which must, according to the detailed descriptions of them to be found in ancient writings, have been extremely beautiful in colour as well as most elaborate in pattern. They must needs have been so, for the resulting effect had to satisfy the artistic instinct of some of the most luxury-loving folk who ever lived on earth.

But these things were in all likelihood embroidered draperies rather than tapestry proper. That is to say,

the pattern upon them was "applied" subsequently to their being woven and was not, as in tapestry, an integral part of the fabric itself—a distinction with a world of difference.

The textile arts were, of course, quite well known to the inhabitants of ancient Egypt. In Egyptian mural pictures, drawn and painted 3,000 years ago and more (when our nicely ordered English countryside was still a howling wilderness with only fierce wild beasts for its inhabitants), are found clear delineations of hand looms entirely similar in plan to those on which the famous "Gobelins" were woven—that is to say, provided with vertical chain, cross reeds, and "comb" to keep the texture of the fabric even.

The skill of the Babylonian textile weavers was proverbial, so old writers tell. Even the Roman Pliny, who might be suspected of a natural bias in favour of his fellow countrymen, is constrained to admit that no other people could blend colours quite so well.

Both Greece and Italy were early and skilled in the field of textile fabric manufacture. Grecian and Trojan cloths and hangings, always of the finest texture, are mentioned over and over again in old Homer's stirring pages. Leaving out of count the godlike draperies of the heroes of the *Iliad*, who among us who has revelled in the adventures of Homer's *Odyssey* will not immediately recall the story of that most patient of all weavers, Penelope? The tale of how, by unravelling each night the web her loom had woven on the previous day, the lady was able to keep her importunate suitors at a distance until her liege lord at last returned and sent them to the right-about is one of the prettiest as well as most ingenious in all literature.

Nevertheless, as has been said, credit for the original invention of textile fabrics suitable for hiding

naked walls must be given to the Easterns. Leaving China, oldest of all lands, out of count, they were known and used all over Hindustan in very ancient times and thence spread easily to Persia, whose shawls—a term including almost every kind of woven material—were celebrated all across the centuries. In the reigns of the Sassanian kings, especially, the land of Iranistan teemed and overflowed with these fine products of the loom, which shared with carpet squares the favour of the Western nations also.

The Arabians picked up the art of weaving from their Northern neighbours, though displaying less facility in design; and many a Bedouin hair tent was made the gayer by the striped cloths and abbas of its owner, used most frequently as a curtain separating the women's from the men's share of the interior accommodation.

A further word may be added about the rich wall coverings of the luxury loving Greeks and Romans of two thousand years ago. The wondrous textile hangings which draped the interior of the Parthenon and other temples of the gods at Athens were no less famous in their day, if less lasting, than were the renowned sculptures of Phidias and Praxiteles on their exteriors. When a knowledge of how to make these pretty things spread westward the Romans showed themselves equally discriminating in their taste for such exotic articles. Applied to the adornment of temples, theatres and other public buildings, as many a contemporary writer, including particularly the poet Ovid, says they were, these woven mural coverings must have greatly enhanced the artistic aspect of the "Eternal City." By far the greater number have long since perished. But there are still some marvellous specimens of Roman hangings to be seen in public collections on the Continent.

With the decline and fall of the great Roman Empire, the art of weaving also waned. Thenceforward there is a great gap in the history of the tapestries, a gap reaching to somewhere about the eleventh century of our era.

Of course specimens continued to be made in that long interval. The monasteries were one of the chief sources of supply at this time, and it must have afforded the pious brethren much relief to turn from their breviaries to the humming loom. To these diligent craftsmen we owe some of the most priceless "pieces" of this period at present in existence. Scenes from Holy Writ or the doing to death of the early martyrs were the favourite subjects with the cloistered artists of the time, and were treated, especially as regards the miracles of saints and the circumstances of martyrdom, with very strict fidelity to detail.

But generally speaking the secular textile output of this long period was of a crude and embryonic kind. The manners of the age were rough and coarse and products would naturally follow suit. Such specimens as remain extant from this epoch of the world's history show poor drawing, little or no striving at real artistic effect, and no colour sense at all. The subjects were chiefly battle scenes or incidents of the chase, and in many instances the picture was indicated in outline only upon the cloth background.

The most famous examples of the kind of textile art of which the eleventh century was capable or with which it was content are the Bayeux Tapestries.

The author preserves a very vivid recollection of a visit he paid, now many years ago, to the quaint little Normandy town.

Like almost every other Englishman not an expert in the subject, he expected to walk through a magnificent suite of lofty chambers, clothed from floor to ceiling with majestic drapery, marvellous alike in design, in colouring, and in technique. What he actually did see was a single room of no unusual proportions arranged all down its length with rows of wooden racks.

On these were stretched what looked at first glance like strips of canvas or brown holland, some twenty inches or so in depth. These strips of narrow cloth, or whatever the material was, were decorated with what would inevitably appear to the casual eye of an untrained observer to be the crudest specimens of coloured woolwork, the stitches being in outline only. Could these insignificant productions really be the world-famous tapestries of Matilda? They were indeed, though it requires the discerning eye of an antiquary and an archaeologist to appreciate their merit.

Truly, as specimens of artistic embroidery (for in the true sense they are not "tapestries" at all), the Bayeux Tapestries are not noticeably handsome. It is when one comes to examine them not as pictures, but as a great historical document written in worsted instead of ink, that their wonder is apparent and their interest priceless.

The groundwork of the tapestries is, as a matter of fact, not canvas at all but linen cloth that, after its service of close upon a thousand years, has taken on the tint of pale brown holland. Upon this, a continuous series of quaint pictures of men and matters has been painstakingly sewn, or embroidered rather, in coarse worsted yarn, the principal colours employed being blue of several shades, dull red, pale yellow and dark and light green.

With these primitive materials Matilda, the Conqueror's Queen, assisted by her ladies (who included many noble Englishwomen doubtless) achieved what is easily the

most wonderful sampler ever fabricated. Upon a roll 227 feet in length by one foot ten in width the whole epic of the conquest of this England by her ducal husband, with the personal deeds of derring of his knights and warriors, as well as those of Harold, his unfortunate antagonist, are faithfully set forth in faded stitchery.

Some faint notion of the mere manual labour involved may be gathered from a bald statement of the number of figures represented. These include no fewer than 623 men, 202 horses, 55 dogs, 505 "assorted" animals, 41 ships of various rig, and 49 trees. Every one of these was put on to that linen stitch by patient stitch, and invented by the Royal sempstress as she went along. The quality of the drawing has frequently, of course, made mild sport for Philistine visitors to Bayeux. Indeed Queen Matilda herself may have felt her own shortcomings as an artist, for upon each picture a description of the particular incident it records is printed in Latin, in inch-long worsted type. But surely in this regard the famous observation of the immortal lexicographer holds excellently true—"the marvel is not that they were done so indifferently well, as that it was possible to do them at all!"

In addition to the figures of the narrative proper of the subjection of our native land, the top and bottom of Matilda's linen roll is filled in with other illustrations of incidents from Æsop's Fables, the agricultural pursuits of the times, and miscellaneous examples of birds, beasts and fishes, some of them readily recognizable, others again resembling rather the mythical creatures to be found only in the children's fairy books.

CHAPTER III

THE TAPESTRIES (Continued)

THE twelfth century witnessed a certain advance in the technique of tapestry weaving, due probably to the influence of the Crusades upon contemporary textile art. The fact is perhaps a little surprising in the light of the pronounced slump in every variety of trade and craft that has followed what we are confidently told is the last of all the wars.

At all events it is from the period which saw the Crusades that the introduction to the Western nations of the "high warp" process of weaving may with tolerable certainty be dated. This type of loom had undoubtedly been known to the inhabitants of ancient Egypt and Greece, as well as to those of Babylonia and Persia.

A very general renaissance of art in all its forms was heralded with the birth of the following (the 13th) century, and in this the craft of tapestry weaving shared importantly. Beautiful wall cloths were no longer the exclusive perquisite of the rich, nor to be seen in wealthy churches and national public buildings only. They appeared quite frequently in the better sort of private houses, until everybody who pretended to be anybody had his "pieces" for the decoration of hall and guest chamber. Mythology as frequently provided the subject as ecclesiastical scenes and figures, and assuredly the loves of a whole pantheon of easy-virtued gods and goddesses afforded plenty of scope for varied treatment in the artistic sense.

The 14th century perfected what had gone before



THE "WOODLANDS" DESIGN
A Hand-printed Paper
(John Line & Sons, Ltd.)

rather than originated new ideas in tapestry manufacture. Now came the real Renaissance in Italian and French art. This was truly the golden age of tapestry: probably in no other period were so many and magnificent specimens produced.

It was towards the close of the 14th century when the town of Arras in North-east France became the great centre of the tapestry-weaving business. Hither gathered the best and most expert of the Flemish weavers and set up their busy looms, till the click-and-rattle of the thrown shuttles scarcely ever ceased in Arras' narrow streets. It was not so very long indeed before the town was so intimately identified with this branch of textile manufacture that "Arras" became a word signifying tapestry itself. Students of Shakespeare will remember that it was behind the "arras" that the gloomy Hamlet's questing sword found out the vitals of poor Polonius.

The town of Rheims took a good second place as a tapestry-making centre, and Ypres, Lille and Valenciennes all had their skilled workmen too.

The art had meanwhile just reached Spain and England, though no very notable pieces were so far produced in either country. France and Italy remained facile principes in this graceful craft, with Flanders a good third.

Tapestry in the reigns of Charles VIII and Louis XI attained even to greater technical perfection, and so far at least as artistic effect is concerned this epoch has never been surpassed, if indeed equalled. The weak point seems to have been a certain barrenness of invention, the designs being still limited in the main to a few well known and exploited themes.

It was about this time that our own country became enriched by magnificent gifts of tapestry from the reigning Duke of Burgundy. One or two famous foreign makers even crossed the Channel and started branch factories on our shores, though only in a tentative and hesitating way.

Tapestry weaving continued to maintain its prestige in the 16th century. In Italy it was regarded so highly as to be placed on a level with painting itself. The transcendent genius of Raphael d'Urbino exercised a tremendous influence in popularizing the tapestries, although the great artist insisted upon treating them as frescoes pure and simple. It is however certain that many of the best designs owed their origin to the Master or to his scarcely less famous pupil Giulio Romano.

In this century it was that this country, too, acquired the bulk of her best specimens. From this epoch date the splendid panels that are one of the chief glories of Hampton Court Palace and the South Kensington Museum as well as of Haddon, Hardwicke, and Hatfield Halls. The love for good tapestry evinced by Cardinal Wolsey is well-known, and he certainly inspired his Royal master, Henry VIII, with something of his own enthusiasm therefor. The subjects in chief of the Hampton Court tapestries are either scriptural, classical or allegorical. They are woven with exceedingly ornate borders, and were evidently made specially to fit the various-sized wall panels in which they were placed. Another interesting feature of the Hampton tapestries is the manner in which a subject is continued through a whole series of compartments.

Credit for the regular introduction of tapestry weaving in these Islands is generally conceded, and probably with propriety, to one William Sheldon who, somewhere about 1549, brought workmen from Flanders and established a small factory at Barchester, in Warwickshire. Other Flemish makers followed and must have "made good" with us uncouth Britons, for it was not long before tapestry hangings began to be seen in the private houses of the burgesses as well as in the palaces of the great and rich.

It remains a little doubtful whether any English workers had as yet come into the competitive field abroad. But there is a set of scenes from the life of Louis XI preserved at Aix in Provence which are supposed to have been woven upon English looms.

Be that as it may, most certain is it that by the next reign, that of Elizabeth, tapestry weaving was a well developed art in England, the Virgin Queen herself being quite on a par as connoisseur with such experts as the Dukes of Tuscany, Ferrara, Mantua and Bavaria, not to mention the King of Spain himself.

Perhaps the most famous British piece of tapestry of this period is, or was, that depicting the defeat of the Spanish Armada, made by Franz Spiernix from designs by the Dutch painter, Cornelis de Vroom, to the order of Admiral Howard of Effingham. This set was originally in six "pieces," but unhappily all of them were destroyed in the fatal fire at the old House of Commons in 1834.

A whole galaxy of artists—Flemish, French, Italian, German, and just one English—designed the tapestries which adorned the 17th century with the lustre of their beauty. Especially does the name of Charles le Brun stand out paramount in this connection. His pictures lent themselves peculiarly to reproduction in the loom's web, and their woven effect is said to have frequently eclipsed even the painting itself from which they were derived.

The outstanding feature of this epoch, regarded from a tapestry point of view, is that the period saw the establishment of the Gobelins State factory in Paris under the aegis of Louis XIV, who, spendthrift monarch as he was throughout the seventy-two years of his reign, had yet an eye for a stroke of business and probably envisaged the economic no less than the artistic possibilities of the new industry. Of course, the Gobelins had existed long previously as a private enterprise, but it was Louis Quatorze who gave the factory its official *cachet*. The names of Comari and De La Planche were also well known as super-skilled producers.

The 18th century was notable principally, perhaps, for the extension of tapestry weaving to Tours and Rheims. The French Tapestry Workers' Corporation was also by now become a very important guild, numbering some 100 members, with upwards of 500 workers affiliated to it. Indeed, the Tapestry Corporation stood

for quite an important branch of national trade.

It has been said above that during the early Middle Ages England showed but little interest in tapestry weaving, and what examples of the art she did possess came chiefly from abroad. Then, in the 17th century, she suddenly appeared upon the scene with a splendid enterprise. This was the celebrated factory inaugurated at Mortlake by the Flemings under the personal auspices of James I, who gave it an annual subsidy of £2,000, a sum worth a good deal more in those days than in this present era of a debased and de-valued currency.

Under the skilled directing aegis of Sir Francis Crane, the Mortlake tapestry-making industry flourished apace, and it was not long before this country was producing a woven wall fabric of at least equal merit, artistically and technically, with the best specimens of any foreign looms.

The factory continued in operation throughout the reign of Charles I and was, wonderful to say, allowed to exist in the austere days of the Commonwealth that followed, history not stating whether any restraint was placed upon the exuberance of designers' fancy in that sad-browed period.

The tapestry-making craft waned, however, at the close of the century, such declension being doubtless due, in part at all events, to the disturbing influence of the Cromwellian wars upon all peaceful occupations in the land. The Roundheads had no taste and the Cavalier party no leisure for its prosecution or appreciation.

The manufacture and the factory had come to an end, both of them, by the middle of the next century, the last noteworthy examples produced at Mortlake being a fine set of classic-allegorical design, to the order of the Earl of Egremont, for the decoration of his London

mansion.

But, although the art died out in England, it still had some considerable vogue upon the European continent. In the 18th century not only walls but pieces of furniture were decorated with this material, and many were the makers who found Fortune sitting by their chattering looms. The French Revolution of 1789 and after. which spared so very little that was artistic and refined, did spare the tapestry works, though for a good while not very much was produced and nothing of any permanent beauty or value.

Italy meanwhile continued to rank as a producing country, and some meritorious examples

hailed from Germany also at about this time.

But the art was dying slowly everywhere, and when the 19th century dawned no more tapestry was anywhere being made.

CHAPTER IV

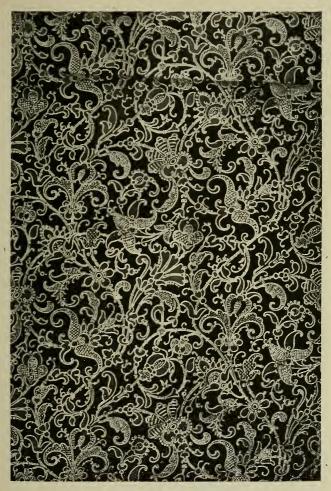
BEFORE THE WALL PAPERS CAME IN

The discontinuance of the use of tapestry as a mural covering does not by any means imply the abandonment for the time being of all effort at clothing naked walls with material of a more or less artistic kind. On the contrary, many instructive chapters might, did space permit here, be indited on the varied forms of mural decoration of the Middle Ages only.

There were, for instance, the glazed tiles—azulejos in the Spanish—that were the ceramic speciality of the Moorish conquerors of the Iberian Peninsula. Their wonderful lustre is a lost art now. But anyone who has visited the Alhambra at Granada must have seen, and paused to admire, the magnificent specimens of ancient tile-work of which the famous old palace is still full.

Stucco was another favourite medium employed by the builders of the period. One of the finest examples in existence of the application of this material to the beautifying of the inner walls of buildings is afforded by the fine but now half-ruined Mosque of Tulim at Cairo. Some of the churches at Segovia in Spain also evidence the state of perfection to which the application of stucco attained at this time. The subject is further instructive inasmuch as it was stucco which actually paved the way for the next development in mural coverings, namely, Leather.

In the utilization of leather for such a purpose Spain again stands forth without a rival; and there remain specimens of leather wall panels in that country that



GOLD AND BLACK RELIEF PAPER (John Line & Sons, Ltd.)

excite the envy as they are the artistic despair of the very best artists of this later time.

Stamped leather, which also was introduced into England by the Flemings in Henry the Eighth's time, has now grown both out of date and fashion. That is a thousand pities upon all accounts, for not only was the effect entirely beautiful in itself, but in addition these leather hangings so closely resembled the superior qualities of paper as to have formed a true link between the old-time tapestry and the wall-papers of to-day.

No form of wall covering known can excel, if it can equal, leather in a certain quiet richness of effect; as witness the "state" apartments at Chatsworth that are hung with this material, all gold-embossed. Then there is another fine collection at the South Kensington Museum that is quite well worth a special visit to see.

After leather came painted cloth as the favourite wall-hanging; and this, either in linen, silk or velvet, in more or less close imitation of the tapestries, had for a long while a great vogue all Europe over. Of course, it was expensive stuff and consequently its use was limited practically to the houses of the rich or well-to-do. But after clever Jerome Lanyer had invented "flock," a covering material contrived at first of powdered woollen which he was able by his process to fix with size upon a cloth or leather basis, other than very wealthy folk were able to adorn their house walls no whit less elegantly than their betters.

This "flock" of Lanyer's was, incidentally, the subject of the earliest known patent relating to wall-papers. He called his product "Londrindiana," and this also was the first trade name ever coined wherewith to introduce a novelty upon the market. Lanyer paid His Britannic Majesty Charles I a sum of £10 annually for the exclusive right of working his invention in

London, and history seems to represent him as having made a very good thing out of it.

As a matter of fact, some of the very earliest printings by wood blocks were of "flock" papers. These were certainly rough and clumsy in appearance when compared with modern products, the flock material (much longer in "staple" than subsequently) being said to have been compressed by means of a flat board. Most elaborate effects were aimed at and designs were even produced in frank imitation of the Gobelin Tapestries themselves. These designs were more in the nature of "panel" pictures than those now used for mural decoration. They were sold in separate sheets, each sheet, or panel, being a picture complete in itself. As to their wearing capabilities history is silent, but information on the point may be adduced from the fact that they were executed in printing ink and the sheets printed off upon an ordinary hand printing press. We do, however, learn so much as that this "wall-paper press" was decidedly unpopular with letterpress printers.

Returning to Jerome Lanyer we find that he did not use paper as a ground for his "flock," for the simple reason that there was none strong enough obtainable. Nevertheless, his invention bore the nearest resemblance to genuine tapestry of anything then existing and so enabled its inceptor to realize a handsome fortune.

Flock is still used as a wall paper to-day, though regarded as somewhat old fashioned. You will, however, come across a "flock" paper, generally in a rather stiff and heavy pattern, in many an old country house or highway inn, and you may be quite certain, moreover, that it has been upon the wall for half-a-century at least, and probably much longer. Indeed, the *lasting* quality of "flock" is shown conclusively by the fact that until quite recently there were flock papers on the walls of

some of the public apartments at Hampton Court Palace which had been there so long that no record remained of when they had been hung. Of fine and bold design, it is nothing but a pity that they should finally have been replaced by something else much more pretentious but possessing not one quarter of their intrinsic interest or "appearance."

At what is known as the Manor House, Saltfleet, an old mansion in which Cromwell is said at one time to have been concealed, there is a wall paper, a combination of cream and dark red, which is supposed to have been on the walls for over 300 years. The owner of the place claims that it is the first wall paper ever put upon a wall in England.

CHAPTER V

EARLY ENGLISH WALL PAPERS

We have now brought the subject down to what are, comparatively speaking, modern times. For with the invention of "flock" paper as a mural covering paper-hanging may be said to have been placed upon a regular and permanent footing as a separate trade. It was still a far cry forward to the up-to-date article as we know it in 1921. But it was by now an actual wall paper that was being produced, and so germane to our story proper.

For some time after its general introduction, however, paper staining and hanging ranked, along with the making of cordials and simples, rather as a domestic than a business art. That the making of coloured wall papers was then practised in the homes of England is evidenced by the contents of many an old eighteenth-century volume, wherein minute directions are given not only for the hanging of the paper, but for the very mixing of the colours wherewith they shall be adorned.

Robert Dossie's Compendium, "The Handmaid of the Arts," published in 1758, is quite a mine of information

upon how things were done in those days.

They seem to have had some fairly level-headed ideas on the subject of effectiveness even then. At all events one finds the difference noted in the sorts of paper best for "cielings," halls, staircases, and "my lady's chamber." Lanyer's "flock" paper was a new invention at this date, and consequently reckoned a very great improvement both with regard to beauty and "durableness."

The tints used for staining the paper in those days were exclusively of the type that we call "water-colour,"



THE "LYCEUM" DESIGN A Hand-printed Flock Paper (John Line & Sons, Ltd.)

and in the same quaint old work complete instruction is afforded for the mixing of these, with a detailed description of the principal ingredients. We are told, for instance, that "paper may be stained yellow by the tincture of French berries, but a much more beautiful colour may be obtained by using tincture of turmeric formed by infusing an ounce or more (so they measured more or less by "judgment" even then!) of the root powder in a pint of spirit of wine. This may be made to give any tint of yellow from the lightest straw to the full colour called 'French Yellow' and will be equal in brightness even to the best French-dyed silks. If yellow be wanted of a warmer or redder cast annatto or 'dragon's blood' must be added to the tincture." And so on through the whole range of the prismatic hues. Mr. Dossie rather naïvely suggests red ink as a good thing for staining paper that colour. For green, he thinks verdigris and copper the best media. A blue might be got by using indigo; orange by first staining an ordinary yellow and then dissolving half an ounce of pearl in it and filtering the solution (a somewhat expensive kind of paper this, one would imagine). Finally, a real royal purple can be had by a tincture of logwood, or even of privet berries from one's own garden hedge. Truly, there was a quantity of information that those dear old writers did not have.

The old fellow goes on to tell us just what kind of paper was employed for hangings circa 1750—"a sort of coarse cartoon paper manufactured for the purpose. . . ." With regard to the colours themselves he is most explicit as well as frugal minded, and he states quite frankly that carmine, for instance, being costly, "may only be used for the most delicate designs, and even then must be used but sparingly." Now that is a really useful thing to know, as otherwise we might

have got to plastering it thickly every time without counting the cost.

Mr. Dossie proceeds to discourse on the proportion of size to colour to be used for the printing of the patterns, and likewise tells us how a good groundwork could be made, which was done at that day by an admixture of size and common whitening for a white ground and so on, varnish being only employed for the better kinds of paper.

As regards the actual printing of the papers there were three methods of which you had the choice—

- 1. Printing the pattern in colours, i.e. with wood blocks.
 - 2. Stencilling, and

3. Application of the pencil by hand.

"When the colours are laid on by printing, the impression is made," says he, "by wooden 'prints' so cut that the figure is made to project from the surface "—embossed in fact. "The colour is gently spread on the raised surface by the agency of a piece of oilcloth. This is done by a boy or man who attends for the purpose." (See how precise he is in all his facts. That "boy" and that "man" attend there specially to do this spreading business. Nothing haphazard or casual about all this.)

He continues: "A fresh colour is put on the block between every impression by the printer himself. He then takes the 'print' in his right hand or, being too heavy, in both and drops it gently on the block, which is charged with the colour, and next lets it fall in the strongest though most even manner on the paper (we can see him doing it; and, by the same token it is exactly how hand-printed wall-papers are made to-day).

"The Sheet is next hung up to dry. There are, of course, as many separate 'prints' as there are colours, each of which is put on successively in the same manner as the first."

The author adds, and with very much propriety, that "great care must be taken to let each 'print' fall in exactly the same part of the paper as the one before it "—that the colours "register" true, in fact. "Otherwise the figure and design would be brought to all irregularity and great confusion." Exactly. The deduction is quite obvious.

"In the common kinds of wall paper," he goes on, it is usual to print only the outlines and to lay on the rest of the colours by stencilling, which both saves expense of cutting prints and can be done by common workmen."

After describing how to cut a "stencil" (he spells the word "stensil" by the way), Mr. Dossie proceeds to inform the waiting world that pencilling, the third of his methods, is only employed when the finest effects are desired. "It is most frequently used for those parts of the design where a spirit of freedom and variety not to be had in the printed outlines is desired to be had in the work." Well, one is permitted to wonder how the operator would set about "stensilling" in the complicated detail of one of the modern patterns so as to get "a spirit of freedom" into the design.

The manner of proceeding with these several methods is, in *common* work (the italics are my own) to "stensil all parts of our colour in design and to give an outline of the whole at last by printing with brown or black; but where there is any running part of the design, such as scrolls or stems of creeping plants, or flowers which are to be printed in any other colour than brown or black the 'prints' must be used for them.

"In the final paper where several colours are to be laid on, the principal is begun with and the rest laid on successively, the printing for the outline being laid

on last of all "-precisely as is done to-day in block

printing by hand.

Paragraphs follow on how to prepare the cloth for making "flock" paper. So detailed are the directions that you are even told how you may either cut the "rags" with a large or small knife or (alternatively) with a "bill" or "chopper"—the latter rather a cumbersome tool, one would imagine, for such dainty work. "But," our author is pleased to add, "it could be better and more carefully done with a machine, which may be worked by a horse-mill at the same time the mill is being used for cutting diamonds"!

'Mr. Dossie is nothing if not thorough. He even shows us how to ornament wall-paper with "spangles"—an art within an art, surely. "This is done by the addition of a matter which is that kind of talc called 'Isinglass'" (at that date apparently a new product). With this the ground is sprinkled sparingly, giving a kind of "spangled" effect which was esteemed to be extremely pretty. At all events, he goes on to say, "The most elegant and rich design I ever saw was one with these talc spots, which was so well arranged that the paper had the appearance of good velvet embroidered with silver, and this even by daylight."

All the foregoing helps to show that the means available for producing wall-papers, like butter churns or mouth organs, were not always what they are to-day. "Knowledge comes but wisdom lingers," sings the poet in *Locksley Hall*—a writer who himself possessed almost as good a grounding in science as he did in scansion. And beautifully artistic and delicately charming though the covering be that drapes our drawing room walls to-day, we are not to suppose that it represents an "instantaneous" effect by any means. It was evolved, on the contrary, out of chaos, like this world of ours

in which we live and take our meals (or did until the unemployment period dawned). That there were papers upon parlour walls nearly two hundred years ago we have just seen. Equally certain is it that, compared with the miracles of taste and beauty with which to-day we decorate them, those old patterns were all unworthy to adorn a cow-byre or a pig-pen.

Yes, truly, methods, through appliances, have changed greatly since the days of Pliny and the Ming Dynasty in China, whence also the very earliest examples of wall paper in paper form have come down to us. Very beautiful specimens they are too, made from wood blocks, wherein the Celestials forestalled our own so-called inventors by a matter of a few thousand years.

Notwithstanding the Chinese reputation for printing, from time immemorial, from wooden blocks, no specimen of their work, produced by that process, has ever come under the notice of collectors for public museums or elsewhere; and it is far more probable that early Chinese work imported into Europe was painted by hand in imitation of the wonderful needlework for which, through unknown ages, the Easterns have been famous.

Paperhangings imported from the Celestial Empire are said to have been frequently used in this country in the reign of Queen Anne. Some writers are of opinion that from these Chinese paper-hangings really originated the idea of the manufacture in England. There is, however, good reason for supposing that they did no more than give an impulse to the use of such hangings.

Chinese and Japanese paper-hangings are to-day occasionally brought home. They are probably partly printed and afterwards finished by hand. A very beautiful and perfect example of paper-hanging of Japanese origin is to be seen in the Queen of Holland's palace at the Hague, "The House in the Wood." This is a needlework composition of foliage and flowers, birds and butterflies, worked in silk on a ground of écru satin, done in colours so harmoniously blended as to be an object of supreme interest to any decorator.

It was not until the middle of the sixteenth century when the first "block" printed papers were made in Europe, the credit for them going to Spain and Holland, both of which countries were of much greater trading enterprise then than is the case to-day. France followed with some cheap but effective imitations of the famous "Gobelin" Tapestries, already herein noticed, the medium of production being the simple one of printers' ink on ordinary hand press.

Actually, however, not until the close of the succeeding century—the seventeenth—was the art of printing flower patterns in bright colours upon paper discovered. This innovation is usually attributed to the Sieur Papillon, who, having got on the right side of his Royal Master, Louis Quatorze, was enabled to start a factory in Paris.

How it came about that, once invented, the craft was ever suffered to die out again, remains a mystery. But die out it did, which is why we hear nothing much more of wall *papers* until the day of Jerome Lanyer.

CHAPTER VI

THE PRODUCTION OF A MODERN WALL COVERING

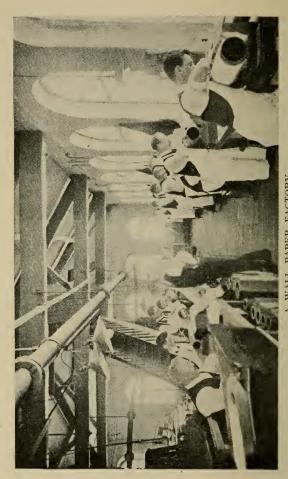
As we have now traced the history and progress of wall-paper "piece" by "piece" and strip by strip, to modern days, this seems to be a good place wherein to say a word or two concerning processes of manufacture.

And here acknowledgment may suitably be made to Wall Paper Manufacturers, Limited, of London and Manchester—an organization which, controlling as it does most of the important wall-paper making enterprises in this country, to-day stands for all that is most typically modern in wall-paper manufacture—for the many kind facilities they have given the author in the preparation of this work.

Now in the matter of the manufacture of wall papers, as in the case of any business whatever, there is nothing like seeing matters at first hand. We will, therefore, greatly daring, request permission from the Company above-mentioned, that we may go down to the factory at Chiswick and view the various processes in *propria persona*. In doing so it will be understood that we desire to obtain a general impression only. We have not any wish at all to give away their cherished business secrets, even if we knew them.

It will be readily enough divined that the works did not spring instantaneously into being, all equipped and prepared for doing business on the scale in which it is to-day conducted. They have, as a matter of mere fact, been of rather deliberate growth since their foundation in 1889.

In those days the Rotary Press, with all its presentday intricacies of clever mechanism, had not been even

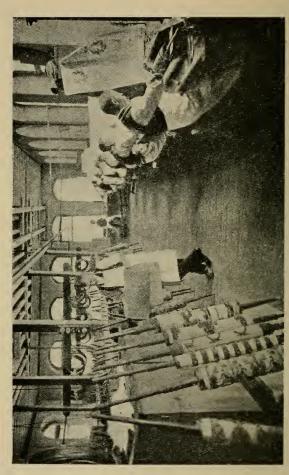


A WALL PAPER FACTORY View Inside Engraving Room (C. and J. G. Potter.)

adumbrated by its inventor. The bare notion of printing some twenty odd colours on to paper, simultaneously and in a single operation, had not, either, been dreamt of. In those old times the patterns were still being slowly printed on, one colour at a time, and the "registering" was, well, just as accurate as could be managed. One cannot say more for it than that. At all events there was nothing better going, and we all know (since the late Sir William Gilbert told us) that when you cannot raise a genuine whirlwind the next best thing is to make play with the bellows.

You would think, none the less, that, once newer methods had been perfected, the old ones would be scrapped. That would be so in many businesses. But one must suppose the wall-paper makers to be an ultra-conservative set of folks, or how otherwise are we to account for the fact that for many a year after their introduction the machine-made goods could not pretend to compete with the old hand-made product? Did the former lack the delicacy of finish of the latter? Were the quality and appearance of the mechanically produced article inferior? Possibly both of those factors had something to do with their failure immediately to "catch on." Or, perhaps, again this was due to nothing beyond the undoubted fact that old methods, like old soldiers, take an unconscionable time a-dving.

Nevertheless, the wheels of the Car of Progress cannot be checked for ever, and it eventually became manifest that the machine-made wall paper had come to stay. It need hardly be said that in the interval that has elapsed since the first "piece" of this was put upon the British market improvement has followed on improvement until something very near to absolute perfection has been reached.



PREPARING THE ROLLERS FOR MACHINE PRINTING (C. and J. Potter.)

Yet withal so far are the "block" printed papers from being obsolete and done for, even now, that manufacturers themselves shall admit that the best kind of hand-made wall covering may still hold its own against the other, if price be reckoned of no account. It is, moreover, a fact that, although the machine-made goods are being turned out at the rate of a thousand or so to every single "piece" of hand-made that leaves the works, there are still certain superfine effects which are only to be obtained in their integrity by the most careful of "hand" processes.

One of our illustrations here depicts the mechanical process of preparing the rollers for machine printing. The printing machine itself consists principally of a gigantic drum having from three or four to a score of colour boxes clamped to its sides. In every box there is a roller whose business it is to feed with colours a short "endless" blanket stretched between and around two other rollers. This blanket in turn supplies the actual printing reel with colour.

The paper goes in at the back, fed from a large reel containing some hundreds of "pieces," cut into lengths. It is run around the drum in a continuous length, entering as a white or self-tinted paper and emerging, after having passed successively under all the rollers, as a completely finished printed wall paper.

It is now automatically hung up on slowly moving racks and on these travels around to the reeling up machine. In its passage the paper has been kept at such a temperature that it is dry and ready to be cut off into "piece" lengths as required at the end of its

journey.

The fundamental difference between roller and block printing lies in this-that in the case of the former all the colours are printed simultaneously. In consequence the edges of the pattern detail have a somewhat indeterminate character. In the block printing paper, on the other hand, where each colour is allowed to dry separately, a much sharper outline can be obtained.

The labour and time entailed in operating one of these machines where special colourings are required render it necessary to run off a large quantity of paper at one printing. This may run to some thousands of pieces, for the machine printer is handicapped here in producing the multitude of colours that are possible to the hand-worked process by blocks, where it is often profitable to make even a "one room" quantity of a particular pattern to suit the special requirement of a customer desirous of matching wall paper, curtains, carpets and all.

The method of printing by hand blocks is shown in the illustration forming the frontispiece to the present work.

Here you have as quarish wooden frame provided, first of all, with a bed of gelatine. On this is spread a layer of felt and to the surface of this felt the colour is applied. The section of wall paper to be treated is now adjusted with the nicest accuracy upon the frame, and is gently but firmly pressed upon the painted felt in order that the requisite portion of it may be treated by the colour deposit on the felt below.

In the manufacture of block or hand-printed paperhangings, the initial process is that of preparing the "ground" to the required tint. This was formerly done upon a table, 12 yds. long, by means of two circular brushes filled with colour to which a revolving motion was imparted by the workman, so that an even coating of colour was laid everywhere upon the paper, The artistic talent which, at the end of the eighteenth century, was expended on the finishing and following up of a pattern by hand, is now devoted to the production of an elaborate drawing of the design. This stage is dealt with in the chapter herein on "The Artistic Side of Wall Paper Manufacture."

In the printing operation itself each block required in succession to form the complete design is supplied with colour by dipping it into a shallow trough, across the bottom of which is stretched a cloth, floating upon gelatine. The operator then places the block in the required position, absolute accuracy being insured by the use of brass studs. Pressure is now applied by means of an upright lever fixed above the printing table, acting on the block by the agency of a bridge-shaped piece of wood.

That is roughly the method, but what the picture is unable to show is the infinite exactitude with which each separate colour is laid and how super-carefully it is dried and absolutely "fixed" before the next one is applied. Herein lies the true craft of the thing: that personal and individual touch which the best sort of machinery cannot give, turn its wheels never so smoothly. Not only does the hand printer truly lay his colour by the block, but after doing so he will, by means of sponge and brush and batten pad, so cunningly touch and retouch it all again that the whole eventually looks like and really is a magnificent piece of hand painted designing. Sure it is that no mere machine, turning out its fifty or so "pieces" while you wait, almost, could hope to vie with that daintiest retouching process, so skilfully, so conscientiously, so affectionately (as one might even say) accomplished.

It needs to be reiterated that for all this loving labour the customer has to pay a certain price. That is only fair, since the best cannot yet be had for nothing. But he will know at least that the result is worth the money.

And, incidentally, in connection with the hand-printing process, it may here be mentioned that one very popular feature of modern mural decoration is a reproduction of the old drawings and designs of fifty or a hundred years ago in the soft yet brilliant colourings that chemistry has placed at the service of the artist. The very finest things of this kind, and indeed of every kind in the domain of mural coverings, are represented in the wondrous pattern books sent out by the above mentioned house. A large proportion of its great business has, in fact, been achieved, and quite naturally so, by the uniform pains taken in the selection of the staff of artist designers, every one of whom is an expert of the first order.

The enormous differences in the rate of production between hand and machine-printed goods acted increasingly as an incentive to manufacturers to adopt the more modern method. Experience proved that a machine could print in an hour with twenty colours as many yards of wall paper as a skilful printer could turn out by hand printing in many weeks of hard labour.

The general improvement in the technique of wall paper manufacture that the last decade and a half have witnessed has called for a corresponding advance in the artistic department of the business. At one time the technical side of the trade had precedence over this branch. But to-day men of the highest artistic qualifications are required both by manufacturers and the purchasing public. Originality of idea allied to faultless taste and high executive ability now count for everything in the estimation of employers, and that



THE "TURIN" DESIGN A Hand-printed Paper (John Line & Sons, Ltd.)

being so, a great advance from the aesthetic standpoint has infallibly resulted.

The years immediately preceding the world war saw a regular "slump" in the demand for the better qualities of wall paper—so much so, indeed, that manufacturers began to despair for the future of their high-class products. Well, that wave of cheapness would seem to have passed with the lifting of the battle clouds.

For one thing, the public who buy wall papers are learning to recognize the intrinsic value of a really good quality article over the other kind. Another factor which has helped is the introduction of high-power electric lighting, which has prolonged the life of every mural covering by as much as 50 per cent at least.

Since the surface of the paper is no longer liable to be ruined by murky gas fumes, necessitating constant renewals, the public have grudged less and less the initial cost of redecorating their chamber walls. Formerly almost anything "did," since in any event it would need to be replaced within a year or two by something else. Now the purchaser wants an altogether better looking article in the first instance. And examining it closely after half-a-dozen seasons and finding it still almost as fresh as on the day it was put on, he realizes at last what true cheapness really means.

In the days of the paper tax in England, paper could only be obtained in sheets for wall paper printing, and a piece contained twelve such sheets of double demy, 35 ins. by $22\frac{1}{2}$ ins., stuck together.

The length of the piece was fixed at the equivalent of a dozen sheets, and as there was some loss through overlapping with the sheets, $11\frac{1}{2}$ yds. was held to be this equivalent.

A piece was called "a dozen" and it is curious that even to-day orders for a hundred pieces will sometimes come in as "a hundred dozens," the old association of the twelve sheets still sticking to the "piece."

The standard length of $11\frac{1}{2}$ yds. of usable material

has never been changed, as it has been found that $11\frac{1}{2}$ yds. gives three wall lengths in a room of average height and causes less waste than any other measurement.

With the improvement of measuring machines the variation of the length of individual pieces has much improved, and the present day variations due to the wear of the machine and the varying skill of the operator does not exceed a few inches either way.

It was about the year 1839 when Mr. Charles Potter and Mr. Ross, as Messrs. Potter and Ross, directed their attention to the practicability of printing or staining paper-hangings by means of machinery similar to that employed for printing calico, and a series of experiments was undertaken at their works at Dop Meadows, Darwen. But it was not until a very considerable amount of expense had been incurred and an infinity of thought and labour bestowed upon the new process that it was brought to a successful issue. The inventors finally had turned to the engraved cylinders, utilized in conjunction with "surface rollers," and then success was speedily achieved. Messrs. Potters' firm having founded it, long continued to maintain the lead in a large and important branch of industry.

Messrs. Potters' Hollins Mill, Darwen, is, by the way, among the earliest established in this country that was devoted to the art of making paper in endless reels. This factory was originally a bleaching works, but was taken over some eighty odd years ago by Mr. Charles Potter. A new factory is under construction in Kent for this firm equipped with the latest type endless-reel Fourdrinier machines, by the agency of which practically

all the paper used throughout the world for wall hangings is produced.

The heavy duty imposed on the manufacture of paper-hangings immediately after they came into use was a great burden upon the trade. In spite of it, however, the industry progressed gradually. In 1770 it yielded the Exchequer over £13,000 and by 1834 the total was £64,000. There were then 108 paper-stainers located in England and 48 in Scotland and Ireland together. The duty was finally abolished by Mr. Gladstone's Government in October. 1861.

CHAPTER VII

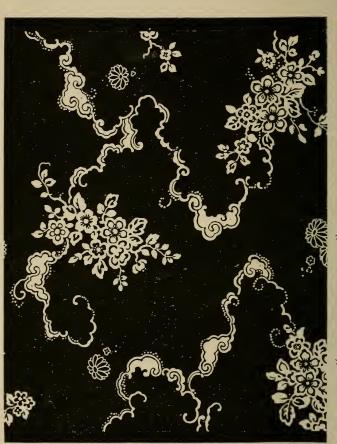
THE ARTISTIC SIDE OF WALL PAPER MANUFACTURE

"The poet is born, not made," says the age-old Latin saw. So is the perfect decorative artist, or at all events he whose speciality is the designing of wall coverings. It must be so in the very nature of things when you come to consider the matter.

Certain definite qualifications for the vocation are needed, of course, for the equipment of any aspirant for success in the career of Art. He must, of course, have a natural aptitude for drawing, a "straight" eye, and above and beyond all, that infinite capacity for taking pains, which the great Dr. Abernethy said was the only true definition of Genius.

But the man who aspires to fill a responsible position in the designing room of a big wall-paper making firm must possess a host of special assets in addition. He must be able to draw, certainly, and to draw above a bit. But besides and beyond that he must be competent to originate those ideas which the mere picture-artist has had placed in front of him by Nature. He is an inventor first and an artist in the second place: one, too, whose resourcefulness is equal to all and every demand that will be made upon it, whose ideas shall never fail him though the stock be drawn upon afresh and afresh through all a lifetime. That is the reason why first-rate designers in this branch of Decorative Art can to-day be counted on one's fingers.

Indeed it is not at all too much to say that the business of a manufacturer of modern wall coverings depends in largest measure for success upon the quality of its



THE "PRINCESS BADOURA" DESIGN (Hand-printed Paper) (John Line & Sons, Ltd.)

designing staff. There never was a time when so great liberty in pattern, so great variety in style and treatment, or so infinite a choice in colour schemes existed as is the case to-day. Nothing in the wide world is too unlikely, nothing too bizarre, to provide a theme that the artist can use and vitalize. He is as apt to obtain a brilliant idea from the window of a bonnet shop in Mayfair or the coloured oddments hanging in the doorplace of a Clerkenwell pawnbroker's as he would from contemplation of some priceless example of "oldperiod" damask or rare silk stuff behind the glass in one of our great national museums. He has the entire realm of fact as well as fancy upon which to draw for his impressions, and being the past expert that he is, he "gets there" most surely and every time.

But he must do, and does, much more than this. He creates taste, he initiates style, he directs the trend of New Design. No sooner has he originated a "mode" and set, and seen, it well agoing, than his fancy, yearning always far forward, has broken untouched ground ahead. He anticipates his market just as certainly as ever does your long-headed member of the Stock Exchange. Are we passing, wall-paperly speaking, through a phase of "period" stuff? Your masterdesigner shall give you a definite date when that phase will be overpassed and the glass of fashion shall have been shaken on to "futuristic" absurdities or back to the daintiness of the chintzes. And his date will be approximately correct, although he hazarded it possibly a year ahead. Kipling described him as accurately as any verbal photograph could do it when he spoke of the man who "Keeps his light so shining a little in front of the next."

We have heard much one way and the other of late years about the Schools of Art and their value to the decorative trades. To-day the schools are doing a valuable work indeed. But there is no doubt that value has from a variety of causes not been what it should in the past.

When the Endowed Schools of Art in this country first came under the aegis of Government control the root idea was that, side by side with instruction in the arts of painting and sculpture, there should be given a thorough training in Art applied to Industry. That was excellent, admirable in principle; but unfortunately Industry, through its accredited representatives, did not extend that support to the technical side of the schools which its undoubted importance in the scheme of things warranted. The consequence was inevitably that the Art Schools tended to become more and more a training ground for the easel-artist and "hobbyist" and less and less so for the Industrial art student and potential craftsman.

Until comparatively lately the clever student-craftsman has never had a fair chance of showing what he could do. Worse blunder still, students of no particular ability, artistically or as handicraftsmen, were stupidly encouraged by teachers, entirely disqualified by their own kind of training to direct the efforts of candidates for diplomas in Industrial Art, to "carry on" in a branch of the subject for which their capacities were totally unfitted.

As a result, the great wall-paper houses were inundated with applications from ordinary art students and even art graduates desirous to become designers. These persons would call with a portfolio of "exhibits," evidently the product of much labour and thought either at home or at the schools. And exceedingly difficult was it to convince them that their work was of no commercial value at all. Yet such was the case. Unless they had been thoroughly grounded in the complex technicalities incident to actual manufacturing processes, until they had steeped themselves in the very atmosphere of wall paper production, they would never make a livelihood at this class of work. For, whilst it is a fact that almost any first-class designer would have made a successful painter of pictures, the number of successful painters who would have made even moderately good designers is an altogether negligible quantity.

Happily this condition of things has now been largely remedied. Courses of specialized instruction in the Decorative Arts are now arranged in all the Government controlled institutions, and with such good result that their pupils are immediately snapped up by the trade whenever their services can be obtained

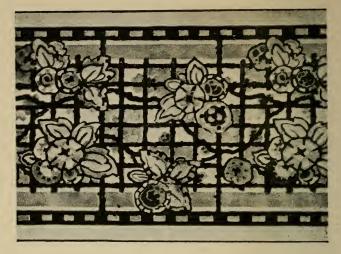
To return to our theme-in-chief, that of the duties of the artist in charge of a big wall-paper-making firm. Suppose that, ourselves unseen, we are permitted to watch the designer of a modern wall-paper pattern at his work. How shall he go about it?

Well, he will first of all make a rough "lay-out" or *croquis* of the design he has invented. His sketch must not only be a pleasing thing intrinsically, but it must also be capable of "repeating" without the slightest noticeable break either in a vertical, a horizontal or a diagonal direction.

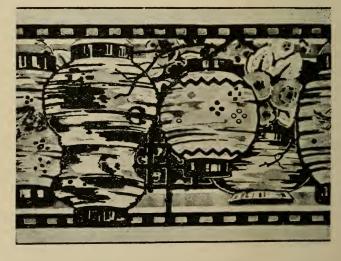
Having achieved his sketch—with beautiful lines, perfect balance and absolute accuracy of "repeat"—the artist sets himself to prepare a finished drawing. It is his first business to see to it that there is no patent fault in any direction, such as bands of heavier detail than the general effect warrants, and no striping or "lineing" anywhere across it.

Having assured himself carefully on these points, he next searches sedulously after obscurer technical

"FESTIVAL OF LANTERNS"



"STYLE" OR EXTENSION OF FRIEZE



LANTERN PORTION OF FRIEZE
From which the Lanterns are cut and applied to
Extension Frieze

discrepancies. For failure to detect such will infallibly spoil all. They are certain to be manifested when the finished work is "hung" upon a wall, whereby accrue loss to the manufacturer who must alter many "blocks" or rollers, and permanent discredit to the artist himself for the producing of a "safe" design.

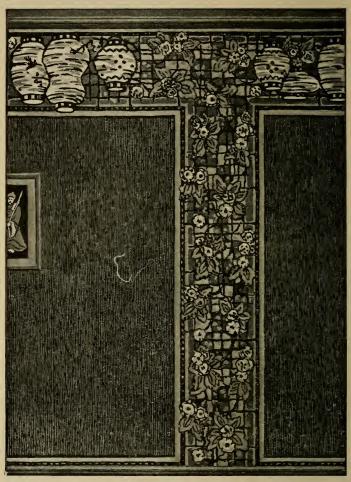
The finished drawing having, however, successfully negotiated all these fences, let us see what happens in

the next stage of its journey towards finality.

If neither alteration nor any modification is needed it is now handed over to the "putter-on." The latter proceeds to make a perfect tracing of it on special paper, using a fine brush dipped in a very sticky and oily ink, easily capable of being transferred to the roller or "block." The latter is a specially prepared 3-ply, the upper surface of which is of fine sycamore wood. The back of this prepared block is crossed with wood working in contrary directions so as to prevent "warping." Its breadth is invariably 21 ins., the length varying slightly in accordance with the size of the design. The tracing is laid over the block and a "rubbing" made on this prepared surface, such rubbing being subsequently coloured in vermilion.

In the case of a design containing several colours each requires to be separately traced and then transferred, and not only so, but the exact "registering" of every one of those various tintings is a matter of the utmost importance and one demanding the acme of skill and technical acumen on the part of the "putter-on."

The pattern, being so far satisfactory, is next passed on to the "cutter," who, in the case of a block, will cut away that portion of the surface of the wood that is unoccupied by the pattern having the design standing out in bold relief.



"FESTIVAL OF LANTERNS" DECORATION HANDWORKED

(John Line & Sons, Ltd.)

The design is now ready for application to the wall-paper. But this belongs to the manufacturing processes proper already described, both as regards machine and hand block printing, elsewhere in this handbook.

CHAPTER VIII

ON THE SELECTION OF A WALL PAPER

Now it may be thought by some folk that, given an ordinary modicum of taste and equally, of course, of means, it should not be a very difficult matter to select a suitable paper for any chamber of one's house. Never was a greater error. Actually and as a mere matter of fact, not one person in a thousand is competent to say just how a particular paper will look when it is on the wall. For not one, but many, factors require to be taken into due consideration when selecting-factors involving the shape, size, height, lighting and even the very furniture itself of the apartment. That is where the experienced judgment of the expert salesman comes in. And the lack of his assistance is the reason why one so often finds a wall paper, pretty enough in itself, that yet shouts its inappropriateness from the chamber's every side.

One good way—the easiest, too— to avoid that sort of disappointment is to put yourself into the hands of an expert and let him do the choosing for you. But if that plan borders too nearly on the meek-and-mild, then the next best thing, if you would have a satisfactory result (and here the experts themselves will probably be in agreement with you), is to select three alternative patterns for every separate room and try them on the walls.

The prime desideratum is to select a wall covering that shall be in harmony with the main purpose for which the room itself is destined. You would not, for instance, be your ideas upon the general subject ever so embryonic, think of mounting the same style of wall paper on dining, drawing and bedroom walls alike. Very well, then: to take the matter a stage further, you would not surely think of papering a room having a low-pitched ceiling with the same design that you would choose for another having lofty walls. It is quite obvious again that a style of pattern which would look charming on the wall of a chamber almost square in shape would have an appearance altogether the reverse of that in an oblong room, with its diminishing perspective.

There is the matter of pictures too, to be regarded. Nobody in his senses would desire that walls already decorated with a number of fine canvases or drawings should be further ornamented by a "voyant" wall paper for background. The most rudimentary artistic canons would forbid it. For such a room a self-coloured paper, or at most an "ingrain," is the only possible thing—

and so on all the way about the residence.

It goes, then, without saying that it is a part, and an important one, of the upholsterer and decorator's business to see that clients, left to their own judgment, do not go hopelessly astray both in the style and treatment of their room walls. If he is a good man at his trade he will shepherd them gently but firmly into the right way of choosing, whilst if he is a very good man he will leave them at the end of things believing that they chose upon their own initiative. Of course it sometimes happens that the customer is, naturally, a man (or woman) possessing a refined, good taste. In that event the expert's duty is immensely lightened for him. His trouble is mainly with the folk who think they know exactly what they want and-don't. If these people eventually arrive at the satisfactory stage it is indeed a feather in the cap of the dealer, though if he be wise he will wear it humbly and almost out of sight,

Let us take, now, a typical English house, the residence of a family belonging to the upper middle class. What rooms will it contain and how shall they be papered?

There will be an entrance hall, of course, dining room, drawing room, and morning room, best and two or three other bedrooms, a nursery probably, besides the kitchen and a bath-room. All will require papering, or re-papering at one time or another. Well, let us see.

For the first named there are various alternative decorative methods available. Paint is one; "marble-and-varnish" another; a plain self-coloured paper is a third; whilst a patterned wall covering makes a fourth. All have their good points to recommend them, and each may possess the defects of its good qualities.

Taking them in the order in which they have been mentioned it may be said that if the hall be not a large one, and therefore, not of prime importance in the internal decorative scheme, paint, of some light but pretty tint—pale pink, cream or mustard yellow will look well, and form a pleasant background to any flower-vases, skins, etcetera, that may be placed here. But you have always to remember that paint is but a single tint at best, and can suggest nothing at all to its surroundings. So, unless there are many brightly coloured rugs to strew about, and gay flowers readily obtainable, this medium is difficult to recommend.

Fifty years ago or thereabouts the "marble-and-varnish" effect was the one seen in the hall and passages of seven houses out of any ten, and nobody at that time seemed to think anything else was either possible or necessary. It had a neat, if cold, appearance, and that is about all that could be said for it, whilst it certainly made a smallish entrance look smaller still. This style of mural decoration has been superseded

by many better notions since, and, once gone, we are not likely to see it back again. We can safely dismiss it therefore from our further consideration.

Next to come under discussion is the self-coloured wall paper, and to a certain extent the remarks made in regard to paint apply to this medium also. A wall paper will always look a shade or two warmer than paint of the same tint, but otherwise there is not much difference between them beyond this, that paint "soils" much the more easily of the two. So we may leave the self-toned papers out of count as well.

There remains a "patterned" wall-paper to consider. Now we will postulate in the first place that there are few or no pictures on the walls here, while there is a fairly large surface to be covered. Obviously what is needed is a paper having a somewhat bold design in brightest colours. For the hall should in our opinion always be a part of the house that can be "sat in" on occasion and it should look comfortable consequently. Bright colours on the paper are quite admissible, therefore, especially if the light be not too good. A handsome frieze looks well, too, though one would avoid a dado. But colour, anyhow, and if possible something original in the way of a design, since first impressions count for much with visitors. One of the charming "Morris" designs, than which nothing handsomer in its way has ever been produced, would give an admirable appearance here.

And in this connection the beautiful "panel" wall-papers to be seen at the recent Building Exhibition held in London, are worth a special mention. A set of designs showing peacocks among flower blooms were quite magnificent as to colour scheme and treatment. So was another "piece" whereon storks sailed down a white-grounded paper to alight upon the flowers

beneath. Any house-proud dame would have delighted to paper her hall with either.

Quite a different decorative effect is wanted for the dining room walls. Here you have a chamber set apart for a definite and distinctive purpose—that of replenishing the inner man. No marked extraneous influence should be present to deflect him from that purpose. So the dining room wall paper, while warm and cheerful, should contain nothing startling, nothing on the "showy" side, either in colour or design. A pleasant Indian red relieved by an artistic wainscotting or dado—the latter not a deep one—looks as well as anything, especially if there be a few good pictures on the walls. If the room be a large one, a dullish pattern of scroll work in low colouring will look well. But in any case there should be no outstanding feature in the design to distract attention from the serious business of eating that is the chamber's raison d'être.

Naturally, if the apartment have low walls, no dado will be needed, as this would make them appear lower still. The paintwork about this room should be in clear contrast to the paper.

Next in importance is the drawing room. Here the decorator may let himself go almost to any extent, provided cost be no particular object to the client. Just as a subdued plain paper is the thing required for the dining room, so for the withdrawing room a light, gracefully patterned and tinted paper is the first desideratum. There are very many well-known and charming styles of drawing room wall coverings, many of them French in character or origin, to name which is almost to describe them. The "Empire" is one of the most pleasing, perennially popular alike for the grace of its outlines and the delicacy of its colouring. The pattern is too large, however, for any but a biggish room.



THE "BIRD, ROSES AND WISTERIA" DESIGN
A 20-colour Machine-printed Wall Paper
(John Line & Sons, Ltd.)

Perhaps this is a convenient place wherein to say a word or two about the French papers, that are so suitable for drawing-room decoration. As one would imagine, a nation so eminently artistic as the French have been responsible for some of the most beautiful styles and designs for wall coverings in existence. The Empire, and Louis XV and XVI "periods" in particular, were fertile in artistic invention, and still at this day the French "period" wall papers rank amongst the very best examples of perfection in design.

Long before we English attained nationally to even a moderate degree of skill in this direction, the French were producing patterns of the most beautiful kind, and for long, indeed, this excellence stood alone in contrast to the mediocrities in output of the other nations, ourselves included.

France still produces magnificent papiers peints (leaving the matter of tapestry, of course, out of count in this connection). But she has no longer a monopoly in artistry as formerly. Her neighbours have meanwhile progressed in taste and perception of the beautiful and even ranged alongside her graceful self. But if they now equal her, our artists cannot, at all events, excel her either in beauty of line, in daintiness of colouring, or in vivacity of style.

The striking "Dresseresque" designs had a great

The striking "Dresseresque" designs had a great vogue also at one time, but this style of mural decoration presupposed furniture to match or it imparted a queer bizarre look to the apartment. Indeed, in no room in the whole house have furniture and wall paper so intimate a correlation as here. They must harmonize or contrast rightly, or the effect is spoilt of both.

The "Adams" style was, and remains, a very popular one for the mural adornment of this chamber. Not

having many vivid colours or any thick hard lines, it never clashes with other decorative materials scattered about the room; indeed, it usually enhances their

appearance.

In a drawing room of smallish dimensions a "Chintz" paper will look extremely pretty, particularly so if the chair and ottoman coverings are of a pretty bright chintz pattern likewise. Pains will of course be taken to see that wall paper and furniture coverings "tone" one with the other. Again, the invariable artistic rule must be studiously observed of mounting a paper with a smallish pattern in a low-ceilinged room, or if "stripes" are employed these must be vertical and not horizontal. Panelled papers, of whatever kind, are only for very magnificently sized apartments.

For the morning room a pretty cheerful paper with a simple pattern on it is the obvious thing. Here, again, the tone of this will depend entirely upon the amount of sunshine that the room enjoys. If it has the advantage of the morning and midday sun, then the wall paper may be a trifle darker than in the other case. But it should never be very dark and should always have a cheerful design with some light tints in it. A wall paper having a white or pale pink ground with a pretty floral design in some fairly bright colour or colours will always give satisfaction to the users of such a room. Some people "panel" their morning rooms in imitation of ornamental woodwork. writer, at all events, does not care for this. Panelling always imparts a serious, not to say sombre, tone to an apartment even though it may be intrinsically artistic.

For library walls there is nothing more appropriate. The library is intended for a serious use, and panelling in imitation of cedar or oak looks admirable upon its book-shelved walls. But the whole day's tone is undoubtedly caught from one's temperamental attitude in the earlier hours of it, and, since these will doubtless be spent in the morning room, the paper here ought surely to reflect a cheery optimism.

CHAPTER IX

THE SELECTION OF A WALL-PAPER (Continued)

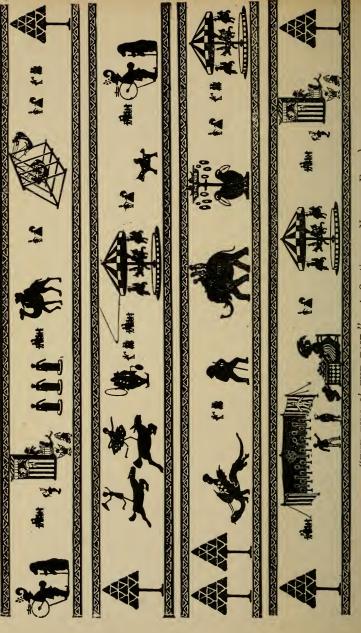
The question of the mural decoration of the ground floor suite of chambers having now been settled, we turn our attention to the rooms in the upper stories of our imaginary house.

Here will probably be situated the boudoir of Madame. Daintiness should be the keynote of the paper on its walls, and for no kind of room have more beautiful wall coverings been designed. The range is well nigh limitless, indeed, and the boudoir pattern-books are

things to linger over lovingly and longingly.

Some of the most charming designs are still the "stripes," the pattern in many of them being carried out in a lattice-work of flowers and foliage, giving a ravishing effect of loveliness. In others, replicas of the old, but ever pleasing "Empire" styles are seen, and these are always in admirable taste: while the range of modern patterns specially suitable for this apartment is, as has just been said, well-nigh as limitless as it is choice.

For the bedrooms, principal and secondary, lightly tinted and cheery papers are a sine quâ non. The most authoritative writers on this subject advocate here the use of papers having loosely knit or at least irregular designs upon them, and for the reason that stiff and formal patterns become wearisome for sick persons to contemplate continually. There is certainly much truth in this contention. At the same time, it is just as certain that those stiff designs are still, in seven cases out of ten, being selected for the bedroom walls—one can't say why. At all events at this time, when



"THE FUN O' THE FAIR." (A Continuous Nursery Frieze) (John Line & Sons, Ltd.)

such a vast range of delightful patterns is available for everybody at all kinds of prices, there is no further excuse for the perpetuation of such poor taste, and one confidently expects to see the old "dot-and dash" sort of thing that used to drive us invalids half mad happily relegated to the limbo of the things that were. Matters of custom and use die hard, we know. But if and when this one does finally disappear it will be regretted by none of us who have ever suffered from its "damnable iteration" in addition to our other pains.

Quite among the prettiest of the bedroom wall papers are the "stripes," though they no longer rank among the newest patterns, perhaps. There is nothing that looks better in a room than this charming style, with its gay floral pattern and clean chintz effect. They are not usually the most expensive either. Panels imply a very large room and even then the effect is often liable to be unpleasing. The panels are perhaps best used when the bed itself is placed in an alcove. Then the idea of a lady's boudoir is half suggested by a panelled paper.

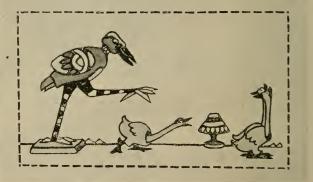
Perfectly plain wall papers should be avoided for bedrooms, even with a pretty frieze or dado. They have a habit of dirtying quickly and, further, take dust and grime from any clothes which may at times be hung

against them.

Now for the nursery—certainly one of the most important rooms around the house, and one not too easy to paper satisfactorily. In the olden days people did not bother themselves much about the paper for this room or its adjunct, the night-nursery. Pretty nearly anything was considered good enough "to do" for them. But that was a grievous pity, for it starved the sense of taste of the youthful occupants at their most impressionable age. Fortunately, parents have "seen reason" in this regard and now take the same care in







THE "GAWKY BIRD" NURSERY PANELS
(John Line & Sons, Ltd.)

selecting pretty and typical papers for these rooms as for any others. It is only very right that they should do so, too. Think for a moment how, when you were a youngster, you came to know every smallest detail in the nursery wall paper off by heart. Each curve or square, every dot or diamond in the pattern, was as familiar to you as your own face, and indeed the "faces" made by odd bits of the pattern and "repeated" along the walls were probably much more familiar than that. All this is over and done with. To-day the utmost efforts of designer and producer, both, have been lavished on the nursery wall papers. The designs exemplified in this direction are among the most copious as they are certainly among the most interesting of all that one is shown. In some of them you have the dear old "nursery rhymes" pictorially illustrated to make a dado; in others you can follow the procession of the animals in Noah's Ark as they march around the room. Then the little Dutch girl-and-boy figures are capital: so are the farmyard friezes. Laid in broad flat tints they look quite splendid, and their educational value from an artistic standpoint cannot be doubted for a moment.

As for the kitchen—well, the very best authorities are coincident in opinion that this indispensable apartment should not be papered at all—in the first place, for the reason that the steam from the cooking would speedily spoil any paper, even a varnished one; and further, because every bit of grease and fat that flies about will stick to it in perpetuity. Distemper is undoubtedly the best, nay, the only thing here, having the dual advantages of being quite easily cleaned and more readily and economically renewed; and in these expensive times this is a distinctly important matter. For the lower portion of the walls tiles are quite excellent.

CHAPTER X

CEILING DECORATION

HAVING dealt with the adornment of the walls of our imaginary house, we still have the ceilings thereof to be considered. Time was, and not so long since, when there was only one possible way of treating these from the "best" rooms to the attics. That was to whitewash them simply.

Why taste and pains together should have stopped short at the wall top it is difficult to guess. But so they did—in every ordinary house, that is to say. Then all suddenly the wonderful notion must have dawned on somebody—and he was a genius surely to have thought of it—that what was decorative for the sides of a room might be equally ornamental for the top of it. So ceiling papers were evolved.

In writing the foregoing one has deliberately left "painted" ceilings out of reckoning. There have been magnificent specimens of these existent clear back to the Middle Ages, far away beyond them, even. But one must perforce class such rather with the pictures *upon* the wall rather than with the paper behind it. Our concern is only with the latter at the moment, though it is altogether hard to see why, when the first wall paper was put on to a room, its ceiling was deliberately left bare.

It is permissible perhaps to think that it was the paperhanging confraternity themselves who initiated the novel theory of regarding the ceiling as well as the walls as coming within their professional purview. It was a revolutionary idea certainly, and one to which no self-respecting whitewasher anywhere could be expected to subscribe. Yet somehow it persisted, or how comes it that to-day ceilings are so often papered, and successfully?

Again, its genesis may have been due to a chance request that the paperhanger should repair the plaster work on the cornice of some chamber he was papering. Was that man seized with a bright idea, suggesting to his principal as an alternative the papering of the ceiling also? Who shall say? All one can vouch for is that there must have been a beginning somewhere, sometime.

If only on account of the fine harmonies and contrasts to be obtained between wall and ceiling decoration, the papering of the latter would be amply justified and very well worth while. Let the reader ask him or herself, which will give the best effect, a plain white ceiling to a room or one whose decoration shall march in style and pattern with the wall paper beneath. The question answers itself instantly.

Most of us who have been privileged to travel have had occasion to admire the wonderfully treated ceilings to be seen in fine old châteaux and public buildings up and down the Continent. They were fabricated long, long ago in days when labour was cheap and time of small acount, and have on that account alone but little in common with the busy paper hanger's art to-day. Yet, whilst it is the good fortune of but few to boast ownership of lovely work like this, imitations of it so excellent that only the expert can distinguish real from false are to-day within the reach of most of us

Reverting to the origin of ceiling papers, one is, seriously, under the impression that, if our American cousins were not actually here concerned, it was they who first set up a sort of standard in regard to papered

ceilings. That they are, as a nation, among the world's greatest travellers, is a fact well known. They have, also, as a people, the reputation of looking carefully about them for ideas what time they go abroad. Whether or not this is so, it remains a fact that some of the very finest modern examples of ceiling papers in existence adorn the houses of rich Americans.

The first requirement of a ceiling paper, whether intended to cover a reception room or bedroom is, of course, that it shall be in perfect consonance with the scheme of decoration of the wall paper below. In general the ceiling paper would contain less of pattern than that upon the walls. However, in the case of a chamber having a plain or "ingrain" paper there is no aesthetic reason why that for the ceiling should not afford a striking and effective contrast to it in the elaborateness of its design. "Effect" is the one thing to be aimed at, striven for. It is obtained sometimes in one way, sometimes in another.

Beyond generalizing it is rather difficult to suggest suitable ceiling papers for particular rooms, so much depending upon individual taste and requirement. The most one can venture upon in that way is to observe that, as a rule, where a low-toned wall covering does duty as a background for valuable pictures, a ceiling paper of broad semi-geometrical design arranged in two or three flat colours will look well, especially if "stiled," that is to say, given a broad white margin at all the outer edges.

Another method of ceiling treatment which nearly always gives satisfaction is by an "ingrain" design outlined in black. A quiet tone is here imparted which is very restful for the eyes. The same may be said of an imitation of stucco or embossed plaster work in white and grey, or pale hyacinth blue. But the possible

combinations are almost endless. Care must, however, always be had that nothing in the ceiling paper "stripes" badly, or "kills" the wall paper itself, by its superior vividness of tint or weight of pattern.

There is another way of treating ceilings referred to by Mr. A. S. Jennings in his valuable book on the subject of wall coverings. It is termed technically "canopy" work and is specially applicable to high-pitched rooms. Canopy work consists in continuing the ceiling paper itself down the side walls for a distance varying anywhere between a few inches and two or three feet. Many of these "canopies" have a charming appearance all their own. They are particularly adapted for use in "my lady's chamber," where they range delightfully with the graceful wall paper.

A hint to the amateur paperhanger in conclusion—ceiling papers should always be hung the short way of the ceiling, not the other. The great point to be aimed at here is the keeping of the pattern absolutely regular across the ceiling. But most probably the best way, and even the cheapest in the long run, is to leave it to the professionals. It is their business after all.

CHAPTER XI

STYLES IN WALL-PAPER : PRESENT AND TO COME

There is no accounting for taste. It is a matter on which you will scarcely ever find complete coincidence of opinion. What is the delight and prideful joy of "A" is anathema maranatha to "B." Consequently the subject of Style (which, turned round, is but another name for Taste) is a difficult one at any time to write about. It is more difficult than ever at the present moment, for reasons which will presently appear.

These lines are set down not so very long after the termination of a world war, which, among the other huge disturbances of which it was the origin, had the effect of dislocating Art and art production everywhere all Europe over.

One must suppose it inevitable that the titanic struggle should have been succeeded by a fierce reaction, a sudden loosening of the strain and tension of those hard years. At all events that reaction did come along, and, as certainly as Armistice Day itself was made the excuse for a national outburst of rejoicing as irrepressible as it was premature, so did the strange tide of levity invade and overwhelm the whole domain of Art Applied.

The result was scarcely short of cataclysmal. Styles and modes gained currency which could never have enjoyed even a momentary vogue in normal times—bizarre fashions of an ugliness so crude that no producer or distributor would ever have dared formerly to foist them upon the public. Blaring, staring colour-schemes held the field of popularity such as could

never have been tolerated in the older days. The world was altogether off its artistic balance for the nonce, in point of fact, and here was the result.

It may be expected, and confidently, that it will speedily recover equilibrium and that these extremes of decorative taste, so unlovely in themselves and so expressive of unsettlement in us, will swiftly pass away and be forgotten. Indeed there are signs that they are already doing so. But, just as the acrid "tang" of some bitter draught remains upon the palate, so is their influence likely to affect the national aesthetic sense for many a long day to come.

Meanwhile, the experts whose lot it is to prepare the field in anticipation of another season's tournament of taste are faced with difficulties commensurate with the abnormality of the times.

Yet, before hazarding a guess at what shall be the style of wall coverings in future, suppose for a moment we cast a look backward to the years before the world-upheaval, wherein these oddities were also born.

As a matter of fact, when traced back to their true source, we find that they had nothing to do originally with us Westerns. Those weird tempestuous specimens of mural adornment were purely Slav in their "beginnings," and emanated undoubtedly from the "comic opera" kingdoms that formed the various Balkan States.

Why we Occidentals, with some reputation for aesthetic sanity to lose, should ever have permitted the horrors to cross the intervening ranges passes comprehension. It is a matter still more mystifying that we should not only have admitted them but adopted them as well. Small wonder is it if our American cousins who came over in the summer of 1920 decided that as a nation of art connoisseurs we had gone stark staring mad. We surely had, so far as such things go.

There was just one redeeming feature in the situation. It was that many English manufacturers would have none of these new fangled futilities. They were determined to adhere rigidly to the old time canons and traditions, or if they did to any extent at all diverge from the ancient standards, it was only in a very moderate degree.

The remainder of the trade simply swung with the tide. Purveyors of every kind of art material, whether textile or generally decorative, deliberately let go all hold on the buoys of rationality and went swirling off downstream on the turgid flood.

At the moment, those responsible for the immediate future, artistically speaking, of the wall paper making business are asking themselves, What is going to happen next? Nobody knows, or seems inclined to predict with anything like certainty. The most that anyone will hazard is that the position, a transitional one, is delicate and interesting.

If we press for a definitive opinion one gathers that the corps of designers as a whole is divided into two camps, or rather schools of prophecy. The one is disposed to hang its banner of belief upon an out-and-away return to the standard "period" styles of years gone by, that is to say, the Damasks and the Italian and French "period" patterns.

The other party, while admitting a possible revivifica-

the other party, while admitting a possible revivinca-tion of "period" styles in wall papers, are as staunchly of opinion that these will inevitably be influenced by the "modern" movement and its subjective changes. They aver that if there be a recrudescence of "period" design at all it will, consciously or sub-consciously, be developed in a modern form. You may, to be sure, see those old and true ideas again embodied in a mural pattern imitating the old Italian tapestries or damasks;

but if so, it will be one informed with a new "feeling" amounting actually to a novel style in design and treatment, both of them.

For a century past we have been content to copy old styles more or less exactly. Now it looks as though we intended to take an old fashion and hash it up as new. Well, if such is to be the case, we may be allowed at least to hope that even so there will be some attempt made to infuse an original "live" idea or two into so much dead stuff, however beautiful that may be.

CHAPTER XII

HOW TO HANG A WALL PAPER

It has been remarked more than once in the course of this little work that it is always best, whenever possible, to leave the putting on of your wall paper to the professional folk whose trade it is to hang it for you. They have the experience and consequently the right knack of it—they possess the proper tools and appliances, which ten to one, you do not. Finally, the responsibility if anything goes wrong is theirs, and you may scold with a clear conscience.

There are a few people, of course, who regularly do their own paperhanging, and do it very fairly well. Other folk there be who may find themselves at times compelled by force of circumstances to become their own paperhangers. It is for the benefit of these that

the following paragraphs are penned.

Having selected your paper, one, we will assume, with no especial feature in the pattern that is likely to spot heavily, the first thing to do if you mean to hang it yourself is to measure carefully the dimensions of your room. By reference to the accompanying table you may ascertain more or less exactly how many "pieces" are required to cover it, and incidentally you are certain to find that the total is a good bit more than you had imagined.

We will suppose that you have meanwhile taken off the old paper, or as much of it as possible, by scraping after a good soaking with hot water.

In papering over walls that have previously been whitewashed, the "wash" must be scraped entirely

A TABLE TO CALCULATE THE NUMBER OF PIECES OF WALL PAPER REQUIRED FOR ANY ROOM

The top line is the measurement round the walls in feet, including doors, windows, etc.	100	13	15	16	17	18	18	=	34
	96	13	13	15	16	17	18	10	32
	92	12	2 4	15	16	16	17	6	31
	88	11 12	13 12	14	15	16	16	0	30
	84	110	13 2	14	14	15	16		30
	08	2 1 3	11	13	14	14	15		28
	9/	6 01	12 12	12	13	13	14		26
	72	6 01	2 =	12	12	133	13	9	24
	89	66	01	Ξ	12	12	13	ıc.	23
	64	တတ	9	10	Ξ :	11	12	5	22
	09	တဘ	တတ	10	10	11	11	4	20
	56	r & 0	တတ	6	10	10	10	4	19
	52	177	- ∞	6	တ	ဢ	10	89	18
	48	991	- 1	00	o	ၵ	6	ಣ	16
	44	ပ	2	7	∞	∞	00	2	15
	40	10 10 0	9 9	7		_	∞	2	14
	36	ເດ ເດ ເ	o 9	9	9	_		2	12
	32	441	ۍ ت <u>ۍ</u>	9	9	9	9	2	11
	28	44	4 4	rC .	ıcı	S	ıc	-	10
Height in feet from skirting to cornice or picture moulding.		to ,;	8½,,, 9 9,,, 9½	:	10 ,, $10\frac{1}{2}$	$10\frac{1}{2}$ ", 11	11 ,, $11\frac{1}{2}$	Quantity required for ceiling	Border required in yards

off them after it has been loosened by a drenching with hot water. Particular care must be taken to clear the angles thoroughly of any remnant of whitewash adhering before putting the new paper on.

You are now ready to deal with the latter, lying yonder on the long trestle table, roll beside roll. The paper you have chosen being one with a pattern of moderate size, you are not faced with the difficulty of a prominent feature in the design recurring at angles of the apartment and consequently having to "go round the corner."

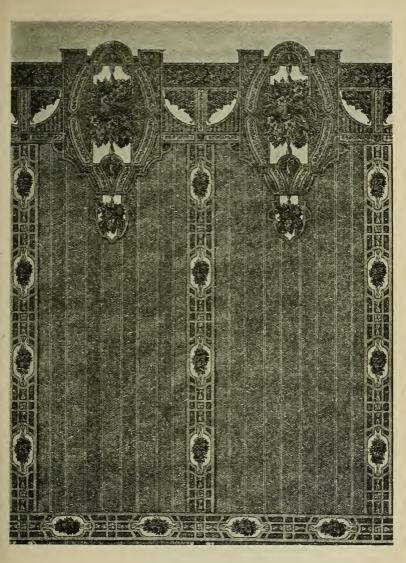
We will suppose, further, that you have cut the first of your strips to the right length. The pasting of the paper is the next matter, and it is an important one, as upon even pasting its life very largely depends.

Paperhanger's paste is the flour kind, wheat flour being generally used. The recipe for making it is as follows: Stir some three or four pounds of wheat flour into water till it has become a stiff paste. Then beat it until entirely free from lumps, afterwards thinning it down somewhat. If there is no gilt in the paper add a couple of ounces of powdered alum and a little borax as an insecticide; now pour boiling water over all and stir until the paste begins to thicken. Then thin down until it has attained the consistency required for application to the wall paper. It can be used warm or cold. Or, simpler still, buy a packet of the powdered paste specially manufactured for the purpose.

There is an art even in putting the paste on. The brush, a broad flat one, should first be drawn down the middle of the strip and then applied diagonally *from*

the edges in order not to waste the paste.

The first piece of wall paper should always be put on at a projecting corner of the room or else at a door or window, because if you happen at the end of all to have



CROWN DECORATION (The Wall Paper Manufacturers, Ltd.)

a bad match in the pattern, these are the places where such a thing will be the least conspicuous. Another good place at which to commence the papering is the fireplace, and for a similar reason.

Now unfold the top half of the "piece" which you are going to apply to the wall. Be sure to get your paper absolutely vertical in the first instance, for once put on askew the whole piece will follow suit, with disastrous results. In smoothing down, brush the paper down the wall as evenly as possible with a soft brush, first the top half and then the lower—till you reach the base board, where the ends are cut off and a level brushing should be given every way, working well into the angles made by the corners of the room.

A good plan is to cut the paper here about an inch or so beyond the angle turn. This will give you a fair start for papering the next side of the room, provided always that the angle itself is true.

Another point to make quite certain of before putting the wall paper on is that the wall itself is in an absolutely dry condition. Alternatively, you can generally obviate damp more or less successfully by covering for about a foot around the part affected with tin-foil and papering over that. It will not show much, but of course a slight bulge is inevitable.

Then there is the matter of papering over boards. The thing to be done here is to cover these first of all with canvas or burlap, to obviate any shrinkage or expansion due to variations in temperature. But before putting on the canvas, a lining paper of some kind (it does not greatly matter what) should be laid on in order to prevent any paste from passing through the material and adhering to the wood.

If you think of varnishing your wall paper, do not attempt to do this until it is quite dry. Give the paper

a couple of coats of size in the first place to prevent the varnish from penetrating into the substance of the paper. Copal is the best for varnishing purposes, though more expensive than the ordinary kinds. It is well worth the extra cost, however.

For cleaning wall papers there are all kinds of methods in practice. One is by the use of stale bread (as one cleans a drawing), rubbing the bread on in a crumbly form. The crumbs will gather most of the dust and dirt which will have formed. Another method is by the application of bran. This is done by means of a dry sponge, with which the paper should be rubbed gently but quickly. Velvet, flock and all papers with a "nap" are best cleaned by dusting simply with a soft brush or feather duster. Yet a fourth way is by the agency of rubber pads.

The removal of grease spots from wall paper is simply enough accomplished by the aid of a sheet of blotting paper and a hot flat iron. Place a piece of blotting paper over the grease spot and press against it with the iron. The heat melts the grease and brings it out into the absorbent blotting paper. Where the wall paper has become smoke-darkened it can be partially renovated by going over with a soft brush over which a flannel has been laid. If the wall is very much discoloured, make a roller by wrapping the flannel round a stick and rub the paper with this, changing your roller as often as it becomes soiled with the smoke.

But, after all is said and done, Mr. Punch's famous advice, as given to postulants for matrimonial bliss, is the best for amateur paperhangers to follow.

In conclusion, a paragraph or so may usefully perhaps be written here on the best method of attaching fabrics such as tapestry to interior house walls.

In the case of the heavier kinds of drapery generally

the panels (whose location has naturally been carefully pre-arranged) are fastened in position by being tacked to light strips of wood nailed to the chamber wall. The process needs to be done most carefully, not only to ensure the panelling being absolutely in the perpendicular, but also so that the four-joinings are perfectly together. Not so much difficulty will be experienced in the case of old tapestry, as this is already invariably mounted on a permanent framework of its own. But the most meticulous care is necessary in the case of a covering of silk or other thin and delicate material. Here the wall should first of all be covered with a "backing" of cotton or unbleached muslin. The silk will be stretched tightly over this, pains being taken to draw equally tightly from every side alike in order that no unsightly creases may be formed.

If the wall covering is to be "pleated" extra care again is necessary. Of course the "pleats" themselves can be made up at the upholsterers and simply tacked into their place. But many persons prefer to arrange them straight on to the wall, and this plan certainly has the advantage that the precise width of pleating giving the best effect can now be seen by a comparison. A fair average width for pleats is half-a-dozen inches, with a distance between them of some fifteen, but wider (and also narrower) are almost as often used.

The pleats require to be very regularly tacked down and sewn, the slightest irregularity irretrievably spoiling the general effect. If well done the resultant appearance is very charming, and more particularly so if a tiny pattern lending itself, so to say, to such treatment be the design upon the material used.

There has quite recently been a marked recrudescence in the popularity of "Chintz" wall papers, and "the trade" believe that these are destined to form one of the most successful "styles" for the season 1921. By their delicate beauty of colouring they surely deserve to be so.

Some people like lace upon their room walls, and there can be no doubt that if suitable patterns are selected a certain effect of delicacy and richness is obtained, especially if the lace be lightly tinted. Lace is best put on with flour paste to which a modicum of fish-glue has been added. Lace wall paper owes its origin to one James Sneddon, of St. Louis, U.S.A., and as a matter of fact this material has always enjoyed a better vogue in the land of the Stars and Stripes than in our older-fashioned England.

CHAPTER XIH

SOME CONCLUDING OBSERVATIONS

The general upheaval of Society, consequent upon the World-war has subsided, or is in course of subsiding, and willingly enough have our millions of amateur warriors—civilians all of them at heart—laid down rifle and bandolier and resumed, together with the tweeds of everyday, their former job in office, shop and factory.

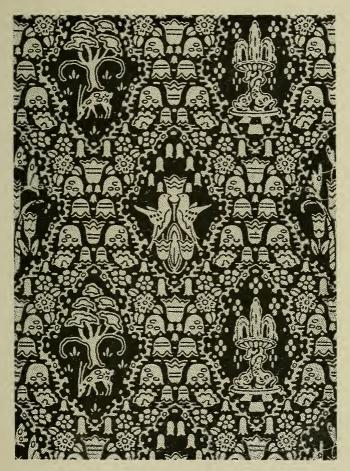
What, then, about the trade outlook?

After "false dawn" comes up the real daybreak, and following upon the spurious boom in commerce, which merely emphasized the sharp reaction from conflict to peace (if not to goodwill always) among the nations an era of economic prosperity as genuine as stable will certainly ensue. It will be prosperity in which every branch of British Industry alike will share, or so the experts tell us—a time that shall inaugurate a welcome change of luck for all.

Perhaps because he was for so long a period divorced from all the little things he cared about, the thoughts of every one of those lately gallant soldiers are centred, and triply centred, to-day upon his private home affairs, which inevitably suffered some neglect in those hard years of storm and stress.

Well, now is the time to remedy all that; and Mr. and Mrs. Everyman, wondering vaguely where to begin the necessary renovations to their dwelling, deliberately decide upon new wall papers throughout.

They do excellently well in making such decision. For the public at large would probably be quite surprised to know how vitally important a part this matter



THE "ARCADY" DESIGN
A Striking Hand-printed Wall Paper
(John Line & Sons, Ltd.)

of the covering for its chamber walls can play in render ing the house supremely charming, or just tolerably nice, or utterly and irredeemably commonplace.

As a nation, our colour-sense is strongly developed. Consciously or unconsciously, the first thing that strikes almost everybody in entering a house for the first time is the tone imparted to it by the kind and colour of the paper on its walls.

A "cold" wall paper, for instance, or one out of harmony with the furniture of any individual room, will produce a correspondingly cold, if not actually an antagonistic, effect upon everyone who stays in that apartment. *Per contra*, a warm, bright paper, with a charming little pattern on it and a cheerful little frieze above, makes everybody happy and satisfied without even knowing why.

Therefore see to it that your wall paper is the right one.

There is no excuse, either, for ugly wall papers to-day, whatever there may have been in the dowdy mid-Victorian epoch of our island story. Never before were such daring colour schemes evolved as challenge your admiration and delight your artistic sense to-day: never previously had client such a limitless variety of choice designs from which to make selection. No wonder is it if the housewife sighs to change her wall coverings as often as she does her window curtains. You are constrained to pardon her the small extravagance for the sake of the artistic sense which prompted it.

So Pelion was piled on Ossa, or rather, more appropriate metaphor, the magicians who were responsible for production called other genii to their aid. These sat with them in consultation and from their labours the "seasonal" wall paper was evolved.

Now in the older days, before the War (that epoch from which nowadays one dates anything and everything) the springtide was the season of the year set peculiarly apart for the adornment and renovation of one's dwelling place, as also of one's personal gear. The "soft impeachment" could not fail to appeal to Madame, and so the new fashion of fresh wall coverings at more frequent intervals, once set, stayed on.

It is a hygienic fashion, moreover, one as good as it is beautiful. That there is nothing in all of Nature to which dust will not, if you allow it to do so, cling is an established fact and one incontrovertible. Of course, just as do some other materials, so some wall papers—the "flock," for instance—hold more of it than others. But all hold *some*. Consequently the more frequently the paper is renewed (for brushing at best but palliates the evil) the healthier the house will be.

It is said, on a good authority, that the reason why the ancients lived on, past century and century, was because they dwelt practically in the open air, out of the way of all dust. And it certainly is a fact that the giant tortoise who spins out his monotonous existence across five hundred years or more is as immune from dust beneath his shell of cast-iron as he is from most other ills that less protected flesh is heir to. Well, then, the inference is an obvious one—renew your wall papers quite often and be a centenarian.—

Having taken your decision, you will find an army of specially trained people all most eager to assist you in carrying it into operation. Some of the public know, of course, exactly what they want, before they visit the dealers. To them these paragraphs are not at all addressed. They are well able to look after themselves. But to the generality of folk who may have





SPECIMENS OF MACHINE-PRINTED
WALL PAPERS
(The Wall Paper Manufacturers, Ltd.)





SPECIMENS OF MACHINE-PRINTED WALL PAPERS
(The Wall Paper Manufacturers, Ltd.)

resolved to alter the existing mural coverings of their rooms the best advice that can be given them is to put themselves in the salesman's experienced hands. It is his business to know and—he knows his business.

Of course, the purchaser will probably have formed some sort of notion previously as to the sort of thing he wants. Even in that event he will find the salesman's advice extremely helpful to him in the carrying out of his ideas. Nay, the former will improve upon them for him, just as a first-rate pianist will improvise the most wonderful variations upon the simplest of original melodic themes. His enthusiasm for his client's own idea (especially if she be a woman) will grow and develop as he listens and later shows his patterns. Then he will begin to explain, with deference, his notions upon the subject, based always on her own. The pleased client is quick to recognize the "personal equation" of the interest displayed. Result: to her, entire contentment with her purchase, and to the enterprising firm of dealers a comfortable little order.

Not that the share of the wall paper distributing firm should be limited to helping customers who have already more or less made up their minds. The real genius for the selling house will create a demand where there was but hazy indecision previously. Quite a large section of the public would re-decorate their walls more frequently if they were encouraged to do so by those concerned with the supplying of their needs. It is a delicate business, naturally, and one for which before all things else the acme of tact is requisite. But for the firm whose *personnel* are possessed of this, prosperity is assured beforehand within a scope whose boundaries are almost infinite.

That British wall paper manufacturers appreciate the point is evidenced to-day by the magnificent development of the trade upon the finest lines. Never hitherto have so many varieties in wall paper been available; never previously has the trade found customers so ready to purchase. The reason is that the two—buyer and seller—have finally "got together" as they never did before.

Most men and all women desire that their house, be it ever so small or ever so tiny a one, shall be a pretty place. Good taste on the part of both will ensure that desideratum up to a certain point, and up to that only. There is a point beyond, and this is exactly where the specialist in decoration, with his wide knowledge of styles and appropriate design in general, comes in. Let him help you then in consultation, if not in practice also. You will not regret it.

CHAPTER XIV

SCHOOLS OF ART AND THEIR TRADE VALUE

[For the information in this chapter the Author is indebted to Mr. Henry G. Dowling, Chief Decorative Adviser for Messrs. John Line and Sons, wall paper manufacturers, who has kindly permitted him to use the material of an address delivered before the Institute of British Decorators on the value of Schools of Art as training grounds for the decorative trades and industries.]

It is abundantly evident that the master painter and decorator of to-day has to bring to his business an immensely wider range of knowledge than was required of him thirty years ago; for in these times of keen industrial competition to very few is allowed the privilege of specializing in any one branch of the craft.

Not only is the general public more exacting and more critical, owing largely to the educative influence of the numerous art institutes and museums throughout the country, but the persistent "pegging away" of certain guilds and associations in an effort to widen the connotation of the term "art" appears at last also to be bearing fruit.

Further than this, it is more and more clear that we are on the brink of a national awakening as to the need of applying Art to Industry. This awakening is evidenced by nothing more plainly than by the issue of specialized literature, such as that published some little time ago by the Government in their series of

pamphlets on "Reconstruction Problems," which included one on "Art and Industry," in which the case for industrial Art was well and succinctly put.

For a very considerable time now both Germany and Austria have given careful study to the value of Art in trade development. Their Intelligence Departments have maintained close surveillance of the output of artists and craftsmen of competitive nations, so that the work of many of our own countrymen is actually better known in these foreign countries than in their own.

Quite recently, too, America has discovered that Art and Industry must go hand in hand, and that an appreciation of the former makes the latter intrinsically better. Under the title "Industrial Art a National Asset of Education" the Department of the Interior Bureau of Education at Washington has recently issued, in circular form, a strong appeal for the development of art education generally in the States; and this is already helping greatly.

As a matter of fact, the present system of endowed schools of art in this country was the direct outcome of a great revival of interest in Art matters, coupled with a general desire to improve education, dating from about the middle of the eighteenth century. Practically simultaneously, though independently, efforts were made in England, Scotland and Ireland to establish institutions for the encouragement of manufacture on Art lines. It forms interesting reading to-day to review the failure of attempt after attempt of committees charged with this duty before the present elaborate system was evolved.

It should be borne in mind, again, that our art museums are themselves the outgrowth of the art schools, and that to-day we are the possessors of the finest institution of its kind in the world—the Victoria and Albert Museum, founded in 1852 to aid "manufactures which are associated with decorative design," into which category the manufacture of artistic wall coverings enters, of course, quite intimately.

If, following on their inception, the industries had supported the schools as they should, the admission of students taking up Art as a hobby merely would have been unnecessary. But craft was not at that time encouraged in the schools by the Board of Education as it has since come to be. It was consequently left without art direction, being relegated to the care of the science-trained principals of technical schools.

Now, however, we see a new race of art teachers—men with a much broader outlook and imbued with the idea that all Art includes "craft." Hence, schools of art have become schools of craft also, where metal and woodwork, carving, plaster work, cabinet making, furniture designing, printing, etc., etc., are taught by specialists, together with a graduated course in drawing and design.

That the art schools are doing valuable work at present is beyond all contradiction. To observe so much one has only to note the influence of the London schools and those in our large provincial towns, where the courses are both practical and thorough. Whilst as yet no classes are held in wall paper design proper, a casual walk through the workshops and studios will dispel the doubts of any critics of the system as to the practical value of such institutions. The fundamental aim is toward "production," and to that the efforts of masters and students tend alike. Conclusive testimony to the value of such schools as that in Southampton Row, in London, rests in the fact that its diplomas are accepted by employers as equivalent to a workshop apprenticeship.



By permission of

Mr. G. Rushton

The above is a typical example of an elaborate design carried out in "Destona," a new and very effective form of mural decoration invented by Mr. George R. Rushton, Principal of the Municipal School of Art at Ipswich. The ground on which the work is executed is of canvas, specially prepared to give a dull or "matt" surface. It is extremely absorbent, the penetration of the colours into the material tending greatly, of course, to secure their permanency. The texture here can be either of a coarse grain suitable for the decoration of large spaces, or again, may present quite a smooth surface upon which detail of the most delicate kind may be painted. "Destona" is a material eminently suitable for application to special positions, as, for instance, panels or friezes; utilized in conjunction with hand-printed wallpapers in particular, it is capable of imparting essential variety and interest to any scheme of decoration.

Outstanding examples in the provinces are furnished by the Art Schools at Manchester, Birmingham, Leicester, Liverpool, Sheffield, Glasgow, and Edinburgh.

At Manchester, where the School of Art has over 1,000 students on its roll, the painting and decorating section is well provided for, as well as competently equipped and staffed. At Birmingham the authorities have long recognized the value of "art school" training for young artisans, and as the outcome of a conference with the local master decorators, special classes in painting and decorating were inaugurated before the War.

At Edinburgh, special attention is devoted in the School of Art to the classes in house painters' and decorators' work, and cordial support is given to the movement by the trade, which is evidently well aware of the advantage of the classes to itself. So earnest, again, has been the pursuit of the new idea at Glasgow that there is hardly a craft that has not benefited from its introduction. Furniture, locally made, is now utilitarian whilst of excellent design; metal-work has been promoted to an important place in the decorative scheme; whilst house decoration, including wall coverings, is through its rationality and "inspiration" an endless delight to the eye.

And so one might go on instancing school after school, each one affording convincing testimony of what is at least a real endeavour on the part of Government-controlled art schools to become of practical use to the community.

Apart altogether from any particular interest in the schools of art, for Art's sake, there is ample evidence from their curricula alone that a course of specialized instruction in the subjects taught would benefit greatly the salesmen in the furnishing trade generally, and wall paper houses in particular. An acquaintance,

at least, with the styles and vital principles of decoration is absolutely essential to the equipment of the "hundred per cent" salesman. Again, there can be no sort of doubt that a more intimate knowledge of what is good makes for greater enthusiasm, and thus the men acquiring it become factors in the advancement of Design.

In all this one does not fail to realize that among the schools themselves there have been some failures. That of applicability is still a quality lacking in many students, and many disappointments could be turned into successes if attention were to be directed to selling rather than production merely. In very many instances, again, non-success has been due to the engagement of instructors who, whilst enjoying local fame as decorators, have themselves either no artistic training or temperament, or if they possess it have not the faculty of imparting the right kind of teaching to students. Where proper teaching has been given the result has invariably been beyond dispute.

It remains now to induce the trade at large to take full advantage of the opportunities afforded. This can be best achieved by both masters and employees taking a keen mutual interest in the tuition courses, and by making sure that all members shall profit equally and uniformly by the instruction now provided.



INDEX

wall

ABOU SIMBEL, mural decorations in tombs at, 4 Arras, tapestry manufacture at, 15 Art Schools, Pompeian, 5 —, the trade value of, 92 Artistic side of wall paper making, the, 45 Babylon, ancient wall coverings at, 3 Bayeux tapestries, the, 10 Bedroom wall paper, selection of, 63 Boudoir wall paper, selection of, 63 British Museum, mural decorations in, 2

Building Exhibition,

papers at the, 57

Dealer and customer, 90
Dining room, papering the, 58
Dossie, Robert, on wall hangings, 25
Drawing room, papering the, 58, 59
Dresseresque wall paper designs, 60
Duty on wall papers, 44

EARLY English wall papers, 25 Electric lighting and wall papers, 42

Hall, papering the, 56
Hampton Court, tapestries at, 16
Hand block printed wall papers, making of, 37
"Handmaid of the Arts," the,

Indian mural decorations, 9

25

Japanese mural textiles, 32 Kitchen, papering the, 64

LACE wall coverings, 83
Lanyer, Jerome, inventor of "flock" paper, 22
Leather, Spanish, stamped as wall covering, 20
Library, papering the, 61
Life of a wall paper, the, 43
"Londrindiana," first trade name, 22

Machine-printed wall papers, TAPESTRIES, a link in mural manufacture of, 37 decoration, 7 Marble - and - varnish —, destruction of Admiral wall papers, 56 Howard's, 17 Morris wall paper designs, 57 —— as wall coverings, 7, 20 ---, Earl of Egremont's col-Mortlake, tapestry factory started at, 18 lection of, 19 —, Le Brun's designs for, 17 NINEVEH, mural decorations for, 13 subjects at, 3 Nursery, papering the, 64 —, religious subjects for, 10 ___, the Bayeux, described, OLD fashions in wall paper 19 Tapestry, French Workers' rehashed, 75 Corporation, 18 Papillon, Sieur, starts wall ---- factory started at Mortpaper factory in Paris, 32 lake, 18 Paste, paperhangers' recipe for, Tax on English wall papers heavy, 42 Pelts as wall coverings, 1 Textile arts and wall paper " Period" wall paper patterns, substitutes, 8 Thebes, wall coverings Persian textiles, 9 ancient temples of, 4 "Piece" of wall paper, size of Tiles as mural decoration, 20 Trojan textile coverings, 8 Pompeii, mural decorations of, Wall Paper, designer's me-Potter, Charles, pioneer in wallthods of work, 49 ——, how to hang a, 76 ——, on the selection of paper making trade, 43 Putter-on, duties of the, 76 a, 54 Queen Elizabeth as tapestry ——Manufacturers, Ltd., connoisseur, 17 33 --- of Holland's palace, wall --- papers, as picture backpapers in, 32 grounds, 55 ----, expert help RAPHAEL and the tapestries, 16 choosing, 55 - —, French " period " styles in, 60 Sheldon starts first tapestry factory in England, 16 — —, frequent renewal South Kensington Museum, of, 87

————, harmonizing, 54 ————, panelled, 61

____, pleated, 82

_____, seasonal, 86

____, spangled, 30

_____, striped, 63, 65

tapestries in the, 16

design, 73

72

Star wall paper styles

Stucco in Segovia churches, 20

Styles, various, of wall papers,





A LIST OF BOOKS

PUBLISHED BY

Sir Isaac Pitman & Sons, Ltd.

(Incorporating WHITTAKER & CO.)

PARKER STREET, KINGSWAY, W.C.2.

A complete Catalogue giving full details of the following books will be sent post free on application.

ALL PRICES ARE NET.

	s.	d.
Aerofoils and Resistance of Aerodynamic Bodies,		
THE PROPERTIES OF. A. W. Judge	18	0
Aeronautical Engineering. A. Klemin	15	0
Aeronautical Design and Construction, Elementary		
Principles of. A. W. Judge	7	6
AEROPLANE STRUCTURAL DESIGN. Jones and Frier	21	0
Aeroplanes and Airships. W. E. Dommett	3	0
AIRCRAFT AND AUTOMOBILE MATERIALS OF CONSTRUCTION.		
A. W. Judge		
Vol. I, Ferrous	25	0
Vol. II, Non-Ferrous and Organic. (In preparation)		
AIRSHIP ATTACKS ON ENGLAND. Kapitan-Leutnant Von	_	_
Buttlar	1	3
ALIGNMENT CHARTS. E. S. Andrews	2	0
ALTERNATING CURRENT MACHINERY. Papers on the Design		
of. C. C. Hawkins, S. P. Smith, and S. Neville	21	
ALTERNATING-CURRENT WORK. W. Perren Maycock .	10	6
ARITHMETIC OF ELECTRICAL ENGINEERING. Whittaker's	3	6
ARITHMETIC OF ALTERNATING CURRENTS. E. H. Crapper.	6	0
ARCHITECTURAL HYGIENE, OR SANITARY SCIENCE AS		
APPLIED TO BUILDINGS. B. F. and H. P. Fletcher .	7	6

	s.	a.
Armature Construction. H. M. Hobart and A. G. Ellis	25	0
ART AND CRAFT OF CABINET MAKING. D. Denning	7	6
ARTIFICIAL SILK. J. Foltzer—T Woodhouse. (In the Press)		
ASTRONOMY, FOR GENERAL READERS. G. F. Chambers .	4	0
AUTOMATIC PISTOLS. Capt. Hugh Pollard	6	0
AUTOMOBILE IGNITION AND VALVE TIMING, STARTING AND		
LIGHTING, INCLUDING FORD SYSTEM. J. B. Rathbun	8	0
AUTOMOBILE STUDENTS AND MECHANICS, QUESTIONS AND		
Answers for. T. H. Russell	8	0
BAUDÔT PRINTING TELEGRAPH SYSTEM, H. W. Pendry	6	()
BOOKBINDING AND THE CARE OF BOOKS. D. Cockerell .	10	0
CALCULUS FOR ENGINEERING STUDENTS. J. Stoney .	3	6
CARPENTRY AND JOINERY: A PRACTICAL HANDBOOK FOR CRAFTSMEN AND STUDENTS, B. F. and H. P. Fletcher	7	6
CENTRAL STATION ELECTRICITY SUPPLY. A. Gay and C. H.		
Yeaman	12	6
CERAMIC INDUSTRIES POCKET BOOK. O. B. Searle	8	6
CHEMICAL ENGINEERING, AN INTRODUCTION TO. A. F.		
Allen	10	6
COIL IGNITION FOR MOTOR CARS. C. Sylvester. (In the Press)		
COLOUR IN WOVEN DESIGN: A TREATISE ON TEXTILE COLOURING. R. Beaumont	21	0
COMMERCIAL AND TECHNICAL TERMS IN THE ENGLISH AND	~.	
Spanish Languages. R. D. Monteverde	3	6
COMPRESSED AIR POWER. A. W. and Z. W. Daw	21	0
CONVERSION OF HEAT INTO WORK. Sir W. Anderson .	6	0
CONTINUOUS-CURRENT DYNAMO DESIGN. ELEMENTARY		
PRINCIPLES OF. H. M. Hobart	10	6
CONTINUOUS CURRENT MOTORS AND CONTROL APPARATUS.		
W. Perren Maycock	7	6
Design of Aeroplanes, The. A. W. Judge	14	C
Design of Alternating Current Machinery. J. R.	00	
Barr and R. D. Archibald	30	
DICTIONARY OF AIRCRAFT, A. W. E. Dommett	2	0
DIRECT CURRENT ELECTRICAL ENGINEERING. J. R. Barr	15	0
DISSECTIONS, ILLUSTRATED. C. G. Brodie	25	0
DIVING MANUAL. R. H. Davis	7	6
	3	6
DYNAMO: ITS THEORY, DESIGN AND MANUFACTURE, THE. C. C. Hawkins and F. Wallis. In two vols. Each	12	6
ELECTRIC LIGHT FITTING: A TREATISE ON WIRING FOR		
Lighting, Heating, &c. S. C. Batstone	6	
ELECTRIC LIGHTING IN THE HOME. Leon Gaster		6

	s.	d.
ELECTRICAL INSTRUMENT MAKING FOR AMATEURS. S. R. Bottone	6	0
ELECTRIC BELLS AND ALL ABOUT THEM. S. R. Bottone.	3	6
ELECTRIC TRACTION A T Dover	25	0
ELECTRICAL ENGINEERS' POCKET BOOK. Edited by R. E. Neale	10	6
ELECTRIC MOTORS AND CONTROL SYSTEMS, A. T. Dover.	18	0
ELECTRIC MOTORS—CONTINUOUS, POLYPHASE AND SINGLE-PHASE MOTORS. H. M. Hobart	21	0
ELECTRIC LIGHTING AND POWER DISTRIBUTION. Vol. I. W. Perren Maycock	10	6
ELECTRIC LIGHTING AND POWER DISTRIBUTION. Vol. II.	10	6
W. Perren Maycock	15	0
ELECTRIC WIRING, FITTINGS, SWITCHES AND LAMPS. W.		_
Perren Maycock	10	6
ELECTRIC WIRING DIAGRAMS. W. Perren Maycock .	5	0
ELECTRIC WIRING TABLES. W. Perren Maycock	5	0
ELECTRIC CIRCUIT THEORY AND CALCULATIONS. W. Perren Maycock	10	6
ELECTRICAL INSTRUMENTS IN THEORY AND PRACTICE, Murdoch and Oschwald	12	6
ELECTRO MOTORS: How Made and How Used. Revised		
by C. Sylvester	4	6
ELECTRO-PLATERS' HANDBOOK. G. E. Bonney	5	0
ELECTRO TECHNICS, ELEMENTS OF. A. P. Young	7	6
Elementary Geology. A. J. Jukes-Browne	3	0
ELEMENTARY TELEGRAPHY. H. W. Pendry	3	6
ELEMENTARY AERONAUTICS, OR THE SCIENCE AND PRACTICE		
of Aerial Machines. A. P. Thurston	8	6
ELEMENTARY GRAPHIC STATICS. J. T. Wight	5	0
EMBROIDERY AND TAPESTRY WEAVING. Mrs. A. H.	10	_
Christie	10	6
Engineer Draughtsmen's Work; Hints to Beginners in Drawing Offices	2	6
Engineering Workshop Exercises. E. Pull	3	
Engineers' and Erectors' Pocket Dictionary: English, German, Dutch. W. H. Steenbeek	2	6
ENGLISH FOR TECHNICAL STUDENTS. F. F. Potter	2	0
EXPERIMENTAL MATHEMATICS. G. R. Vine		ľ
Book I, with Answers	1	4
" II, with Answers	1	
Explosives Industry, Rise and Progress of the British		
FIRE D. MANUAL TUR A LOYAL Higgins		r

	S.	d.
FILES AND FILING. Fremont-Taylor		0
FIRST BOOK OF ELECTRICITY AND MAGNETISM. W. Perren	6	0
Maycock	_	-
FLAX CULTURE AND PREPARATION. F. Bradbury	10	6
Furs and Furriery C. J. Rosenberg	30	0
Fuselage Design. A. W. Judge	3	0
Gas Engine Troubles and Installation. J. B. Rathbun	8	0
GAS, OIL AND PETROL ENGINES: INCLUDING SUCTION GAS		
PLANT AND HUMPHREY PUMPS. A. Garrard	6	0
GAS AND OIL ENGINE OPERATION. J. Okill	5	0
GAS, GASOLINE AND OIL ENGINES. Including Glossary.		
J. B. Rathbun	8	0
J. B. Rathbun		
THE CAS PITTER CAS ENGINEER AND CAS CONSUMER.		
W. H. Y. Webber	4	0
GERMAN GRAMMAR FOR SCIENCE STUDENTS. W. A.		
Osborne	3	0
HANDICRAFTS AND RECONSTRUCTION	2	6
HAND-LOOM WEAVING. Luther Hooper	10	6
HANDRAILING FOR GEOMETRICAL STAIRCASES, W. A.		
Scott	2	6
HIGH-SPEED INTERNAL COMBUSTION ENGINES. A. W. Judge	18	0
HISTORICAL PAPERS ON MODERN EXPLOSIVES. G. W.		
MacDonald	9	0
HOSIERY MANUFACTURE. W. Davis	9	0
How to Manage the Dynamo. A. R. Bottone	2	0
Hydraulic Motors and Turbines. G. R. Bodmer .	15	0
ITYDRAULIC MOTORS AND TURBINES. G. R. Boulnet .	6	_
INDUCTION COILS. G. E. Bonney	0	0
Insulation of Electric Machines. H. W. Turner and	0.1	0
H. M. Hobart	21	
LAY-OUT OF SMALL WATER MAINS. H. H. Hellins	7	6
Leather Work. C. G. Leland	5	0
Lektric Lighting Connections. W. Perren Maycock .		9
LENS WORK FOR AMATEURS. H. Orford	3	6
LIGHTNING CONDUCTORS AND LIGHTNING GUARDS. Sir O.		
Lodge	15	0
LOGARITHMS, FIVE FIGURE AND TRIGONOMETRICAL FUNC-		
TIONS. W. E. Dommett	1	6
LOGARITHMS FOR BEGINNERS	1	6
MAGNETO AND ELECTRIC IGNITION. W. Hibbert	3	6
Management of Accumulators. Sir D. Salomons	7	6
Manual Instruction—Woodwork. S. Barter	7	6
" " Drawing "	4	0

	s.	d.
MANUFACTURE OF EXPLOSIVES. 2 Vols. O. Guttmann .	50	0
MARINE SCREW PROPELLERS, DETAIL DESIGN OF. D.		
Jackson	6	0
MATHEMATICAL TABLES. W. E. Dommett	4	6
MECHANICAL TABLES, SHOWING THE DIAMETERS AND CIR- CUMFERENCES OF IRON BARS, ETC. J. Foden	2	0
MECHANICAL ENGINEERING DETAIL TABLES. J. P. Ross. (In preparation)		
MECHANICAL ENGINEERS' POCKET BOOK. Whittaker's .	6	0
MECHANICS' AND DRAUGHTSMEN'S POCKET BOOK. W. E. Dommett	2	6
METAL TURNING. J. Horner	4	0
METAL WORK—REPOUSSÉ. C. G. Leland	5	0
Manual Work—Repousse, C. G. Leiand	4	0
METAL WORK. (Handbook). J. S. Miller	4	U
METRIC AND BRITISH SYSTEMS OF WEIGHTS AND MEASURES.	3	6
F. M. Perkin	2	6
MINERALOGY: THE CHARACTERS OF MINERALS, THEIR	_	Ü
CLASSIFICATION AND DESCRIPTION. F. H. Hatch .	6	0
MINING MATHEMATICS (PRELIMINARY). G. W. Stringfellow	1	6
MODERN ILLUMINANTS AND ILLUMINATING ENGINEERING. Dow and Gaster	25	0
MODERN PRACTICE OF COAL MINING. Kerr and Burns.		
Part I, 5s. Parts 2, 3 and 4	6	0
MODERN OPTICAL INSTRUMENTS. H. Orford	4	0
Modern Milling. E. Pull	9	0
Motor Boats, Hydroplanes and Hydroaeroplanes.	_	^
T. H. Russell	8	0
MOTION PICTURE OPERATION, STAGE ELECTRICS AND ILLUSIONS. H. C. Horstmann and V. H. Tousley .	7	6
MOTOR TRUCK AND AUTOMOBILE MOTORS AND MECHAN-	•	Ü
ISM. T. H. Russell	8	0
Moving Loads on Railway under Bridges. H. Bamfor	d 5	6
OPTICS OF PHOTOGRAPHY AND PHOTOGRAPHIC LENSES.		
J. T. Taylor	4	0
Pipes and Tubes: their Construction and Jointing. P. R. Björling	6	6
PLANT WORLD: ITS PAST, PRESENT AND FUTURE, THE. G.		
Massee	3	0
PLYWOOD AND GLUE, MANUFACTURE AND USE OF. B. C.	_	_
Boulton	7	6
POLYPHASE CURRENTS, A. Still	7	6
Power Wiring Diagrams. A. T. Dover	7	6

	s.	đ.
PRACTICAL EXERCISES IN HEAT, LIGHT AND SOUND. J. R. Ashworth	2	6
Ashworth	6	0
PRACTICAL EXERCISES IN MAGNETISM AND ELECTRICITY.	3	0
J. R. Ashworth	10	0
Practical Ironfounding. J. Horner	10	0
Practical Testing of Electrical Machines. L. Oulton	10	U
and N. J. Wilson	6	0
PRACTICAL TELEPHONE HANDBOOK AND GUIDE TO THE TELEPHONIC EXCHANGE. J. Poole	15	0
PRACTICAL ADVICE FOR MARINE ENGINEERS. C. W. Roberts	5	0
PRACTICAL DESIGN OF REINFORCED CONCRETE BEAMS AND		
COLUMNS. W. N. Twelvetrees	7	6
PRIMER OF ENGINEERING SCIENCE, A. E. S. Andrews .	4	6
Principles of Fitting. J. Horner	7	6
Principles of Pattern-Making ,,	4	0
RADIO-TELEGRAPHIST'S GUIDE AND LOG BOOK. W. H.		
Marchant	5	6
RADIUM AND ALL ABOUT IT. A. R. Bottone	1	6
RAILWAY TECHNICAL VOCABULARY. L. Serraillier	7	6
Reinforced Concrete. W. N. Twelvetrees	21	C
REINFORCED CONCRETE, DETAIL DESIGN IN. E. S.		
Andrews	6	0
RESEARCHES IN PLANT PHYSIOLOGY. W. R. G. Atkins .	9	C
Roses and Rose Growing. Kingsley, R. G	7	6
Roses, New		9
RUSSIAN WEIGHTS AND MEASURES, TABLES OF. Redvers Elder	2	6
SIMPLIFIED METHODS OF CALCULATING REINFORCED CON-		
CRETE BEAMS. W. N. Twelvetrees		9
SLIDE RULE. A. L. Higgins		6
SLIDE RULE. C. N. Pickworth	3	6
SMALL BOOK ON ELECTIC MOTORS, A. C.C. AND A.C. W. Perren Maycock.	6	(
SPANISH IDIOMS WITH THEIR ENGLISH EQUIVALENTS. R.		
D. Monteverde	3	(
SILVERWORK AND JEWELLERY. H. Wilson	8	6
STAINED GLASS WORK. C. W. Whall	10	6
STEEL WORKS ANALYSIS. J. O. Arnold and F. Ibbotson .	12	e
Storage Battery Practice. R. Rankin	7	(
STRESSES IN HOOKS AND OTHER CURVED BEAMS, THE.	6	(

s	. d.
SUBMARINES, TORPEDOES AND MINES. W. E. Dommett . 3	6
SURVEYING AND SURVEYING INSTRUMENTS. G. A. T.	
Middleton	_
Tables for Measuring and Manuring Land. J. Cullyer 3	0
TABLES OF SAFE LOADS ON STEEL PILLARS. E. S.	
Andrews	0
TEACHER'S HANDBOOK OF MANUAL TRAINING: METAL WORK. J. S. Miller	0
J. S. Miller	. 0
TELEGRAPHY: AN EXPOSITION OF THE TELEGRAPH SYSTEM	·
of the British Post Office. T. E. Herbert . 18	0
Telephony, Elementary. By the Same Author. (In preparation)	
TEXT BOOK OF BOTANY. Part I-THE ANATOMY OF	
FLOWERING PLANTS. M. Yates	0
TEXTILE CALCULATIONS. J. H. Whitwam 25	0
TRANSFORMERS FOR SINGLE AND MULTIPHASE CURRENTS.	
G. Kapp	6
TRIGONOMETRY FOR ENGINEERS, A PRIMER OF. W. G.	
Dunkley	_
TRIGONOMETRY, PRACTICAL. H. Adams	5 0
TRIPLANE AND THE STABLE BIPLANE, THE. J. C.	
Hunsaker	_
TURRET LATHE TOOLS, How to Lay Out	
Union Textile Fabrication. R. Beaumont 2	0
VENTILATION OF ELECTRICAL MACHINERY. W. H. F.	
Murdoch	6
VENTILATION, PUMPING, AND HAULAGE, THE MATHEMATICS	5 0
	36
J. L. Topp	_
The state of the s	5 0
Wireless Telegraphy and Hertzian Waves. A. R. Bottone	3 6
Wireless Telegraphy: A Practical Handwork for	, 0
	7 6
WOOD-BLOCK PRINTING. F. Morley Fletcher	3 6
Woodcarving. C. G. Leland	0
	7 6
	ا 6
WRITING, ILLUMINATING AND LETTERING. E. Johnston .	3 6

TECHNICAL PRIMER SERIES

Edited by R. E. NEALE, B.Sc. (Hons.), A.C.G.I., A.M.I.E.E.

In each book of the series the fundamental principles of some sub-division of engineering technology are treated in a practical manner, providing the student with a handy survey of the particular branch of technology with which he is concerned. They should prove invaluable to the busy practical man who has not the time for more elaborate treatises. Each 2s. 6d. net.

THE STEAM LOCOMOTIVE. By E. L. Ahrons, M.I.Mech.E. Belts for Power Transmission. By W. G. Dunkley, B.Sc. (Hons.). Water-Power Engineering. By F. F. Fergusson, A.M.I.C.E.

PHOTOGRAPHIC TECHNIQUE. By L. J. Hibbert, F.R.P.S. HYDRO-ELECTRIC DEVELOPMENTS. By J. W. Meares, F.R.A.S.,

M.Inst.C.E., M.I.E.E.

THE ELECTRIFICATION OF RAILWAYS. By H. F. Trewman, M.A. CONTINUOUS CURRENT ARMATURE WINDING. By F. M. Denton, A.C.G.I.

MUNICIPAL ENGINEERING. By H. Percy Boulnois, M.Inst.C.E.,

F.R.San.Inst., F.Inst.S.T.

FOUNDRY WORK. By Ben Shaw and James Edgar.

PATTERN-MAKING. By Ben Shaw and James Edgar.

THE ELECTRIC FURNACE. By Frank J. Moffett, B.A., M.I.E.E., M.Cons.E.

SMALL SINGLE-PHASE TRANSFORMERS. By Edgar T. Painton, B.Sc., A.M.I.E.E.

PNEUMATIC CONVEYING. By E. G. Phillips, M.I.E.E., A.M.I.Mecl. E.

Boiler Inspection and Maintenance. By R. Clayton. Electricity in Steel Works. By W. Macfarlane, B.Sc. Modern Central Stations. By C. W. Marshall, B.Sc.

STEAM LOCOMOTIVE CONSTRUCTION AND MAINTENANCE. By E. L.

Ahrons, M.I.Mech.E., M.I.Loco.E. HIGH TENSION SWITCH GEAR. By H. E. Poole, B.Sc., A.C.G.I.,

A.M.I.E.E. HIGH TENSION SWITCH BOARDS. By the Same Author.

Power Factor Correction. By A. E. Clayton, B.Sc., A.K.C.,

A.M.I.E.E.

TOOL AND MACHINE SETTING. By P. Gates.

TIDAL POWER. By A. Struben, O.B.E., A.M.I.C.E.

SEWERS AND SEWERAGE. By H. Gilbert Whyatt, M.I.Inst.C.E., M.Roy.San.Inst., M.Inst.M. and C.E.

ELEMENTS OF ILLUMINATING ENGINEERING. By A. P. Trotter, M.I.C.E.

COAL-CUTTING MACHINERY. By G. E. F. Eagar, M.Inst.Min.E. GRINDING MACHINES AND THEIR USE. By T. R. Shaw, M.I.Mech.E. ELECTRO-DEPOSITION OF COPPER. By Claude W. Denny, A.M.I.E.E.

Catalogue of Scientific and Technical Books post free.



ti Mai



